THE PROVINCE

OF

SOUTH AUSTRALIA

WRITTEN FOR

THE SOUTH AUSTRALIAN GOVERNMENT

BY

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WITH A SKETCH OF

THE NORTHERN TERRITORY,

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PREFACE.

THE following account of the Province of South Australia, from its discovery in 1627 to the end of 1892, was written under the authority of the Government of the Colony. The work differs in plan and arrangement from other books of a similar character which have appeared in former years. Besides being brought down to a later period, the volume includes much that has not hitherto appeared in print in a collected form. Apart from the official aid which has been received by the author in the execution of his work, he is indebted to many friends and others for useful suggestions and valuable information, of which he has been glad to avail himself. They are too many to be indicated by individual names, but it is hoped that they will kindly accept the grateful and sincere acknowledgments for their assistance which are tendered to them here.

delaide, December, 1893.

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SOUTH AUSTRALIA.

CHAPTER I.

Discovery of South Australia.—Nuyts in 1627—The Great Australian Bight—The Coastline—Captain Flinders in the "Investigator"—Sights Cape Leuwin in December, 1801—Fowler's Bay and Banks' Peninsula—Lands on Thistle Island—Mr. Thistle and his Boat's Crew Lost—Port Lincoln, Spencer's Gulf—Kangaroo Island, St. Vincent's Gulf—Troubridge Island and Shoal—Mount Lofty—Head of St. Vincent's Gulf—The Hummocks—Mount Brown—Mount Arden—Yorke's Peninsula—Backstairs Passage—Encounter Bay—Meets "Le Geographe"—Proceeds to Sydney—Loss of the "Porpoise"—Sails for England in the "Cumberland"—Arrival at Mauritius—Kept Prisoner for Six Years and a Half—Returns to England—His Death—Captain Barker—His Arrival in St. Vincent's Gulf—Ascends Mount Lofty—Penetrates to the Murray Mouth—Murdered by the Natives.

The discovery of that part of New Holland which now constitutes a portion of the province of South Australia was made in the year 1627, by a Dutch navigator who named it Nuyts' Land. The newly-found country extended along the greater part of the coastline which forms the Great Australian Bight. Its appearance was not attractive. All that was seen from the ships was two long lines of cliffs about 400ft. high, brown and dark-colored at the top, and nearly white at the bottom, which extended for several hundred miles. The aspect of the newly-discovered land was not of a kind to encourage further investigation, even if the discoverer had at command the time and the means necessary for such an undertaking. It is not surprising, therefore, that that portion of Australia was not again visited for nearly two hundred years.

The founding of the colony of New South Wales led to the organisation of many expeditions to examine and explore the coasts of the territory which had been newly acquired by England. They were gradually extended both north and west, and were rewarded by most important discoveries. Admiral D'Entrecasteaux, a French officer, commanded an expedition to seek for La Perouse, who had not been heard of for many years. In the course of his search he made important discoveries in Van Diemen's Land, as Tasmania was then called, visited the west coast of Australia, and steering along the south part of New

Holland, reached Fowler's Bay about the end of the year 1792. Lieutenant Grant, R.N., was sent from England, in command of the *Lady Nelson*, a brig of sixty tons burthen, for service as a surveying ship, under the direction of the Governor of New South Wales. On his way to Bass's Straits, through which he had been instructed to pass on his way to Botany Bay, he discovered Cape Banks and Cape Northumberland. He also saw Mount Gambier and Mount Schanck, both of which were named by him. These are the earliest recorded discoveries of the country now called South Australia.

Matthew Flinders, a midshipman on board the *Reliance*, who had long been engaged in exploring and surveying work at Moreton Bay, returned to England in the year 1800. He had distinguished himself greatly in naval explorations, but especially with Mr. Bass in sailing through Bass' Straits, and in proving what had only been conjectured before—that Tasmania, or Van Diemen's Land as it was then named, was an island. In England his discoveries became known through the exertions of Sir Joseph Banks, who brought Flinders and his projects for further explorations in the seas of New Holland prominently before the Admiralty, then directed by Earl Spencer as its First Lord. A ship was purchased for the purpose of carrying out Flinders' plans, and he was appointed to command her. The vessel was not new, but she was considered to be good enough for the work which was before her. She was thoroughly refitted and coppered, and was provided with all that in those days was deemed necessary to ensure the success of the expedition. Her burthen was only 340 tons. She was re-named the *Investigator*. She had previously sailed under the name of the *Xenophon*. Mr. Robert Brown accompanied Flinders as botanist to the expedition, and Mr. Westall, the celebrated landscape painter, as artist. A well-known writer on the subject of the exploration of Australia*, observes "that a more fortunate selection for the purpose could not have been made. Australia owes very much to both those men. The labors of Brown upon the coast left nothing to be desired. Of course he could not see everything; but he saw so much that one is astonished to observe how little was left for others to do. Since his time naturalists have had hard work to glean novelties from the regions near which Brown had set his foot. To Westall the same meed of praise can be given. The classic story of Flinders is rendered truly charming by the powerful pencil of the artist." Mr. Franklin, cousin to Flinders, who (as Sir John Franklin) became Governor of Van Diemen's Land and who subsequently died in the Arctic regions when in command of an expedition to discover the north-west passage, was a midshipman on board the *Investigator*.

* J. E. Tenison Woods, Discovery and Explorations of Australia. London, 1865.

The *Investigator* left Spithead on the 18th of July, 1801. The voyage to Cape Leuwin extended over a period of five months, including a brief stay at Madeira and the Cape of Good Hope. Cape Leuwin was sighted on the 6th of December. Flinders entered King George's Sound with the intention of making some necessary repairs to his ship, but he found no place suitable for the purpose. He accordingly moved on to a neighboring inlet called Princess Royal Harbor, where the *Investigator* was overhauled and her defects made good. On leaving the harbor, Flinders kept close in to the land in the expectation of finding some opening; none, however, existed. There was a gap for a short space in the line of the cliffs, and smoke was seen inland, but the break did not continue for any great distance and the high land appeared once more. * The length of these cliffs from their second commencement is thirty-three leagues, and that of the level bank from Cape Pasley no less than 145 leagues. The height of this extraordinary bank is nearly the same throughout, being never less than 400ft. and nowhere more than 600ft. In the first twenty leagues the rugged tops of some inland mountains were seen above it, but during the remainder of its long course the bank was the limit of the view.

Flinders pursued his voyage to the eastward, still keeping near to the coast until he saw the end of the second range of cliffs. Here it became sandy and turned north-east for some few miles. He had reached the head of the Great Australian Bight. † A few hours' sail brought him to Cape Nuyts, beyond which no exploration had extended. Here the country showed signs of improvement; it was fairly wooded, but the soil appeared to be sandy. After passing Cape Nuyts several bays were found. The first, Fowler's Bay, was named after the first lieutenant of the ship; Smoky Bay, Streaky Bay, Anxious Bay, and Coffin's Bay were visited in turn and named, but the country nowhere presented features of interest. After spending some short time in surveying the various inlets which abound off that portion of the eastern limit of the Great Australian Bight, he followed the coastline past Point Sir Isaac until it began to trend to the north. On the 17th of February, 1802, Flinders landed. The place where he disembarked was thought to be connected with the mainland, but it was soon ascertained that it was an island. This was named "Thistle Island," after the mate of the *Investigator*. Numerous seals were seen there and many traces of kangaroos; no natives, however, were met with. To the north a group of islands was discovered, and a boat was sent away under the charge of Mr. Thistle and a midshipman

* Flinders' Voyages to Terra Australis. London, 1814.

† About 160 miles west of this is situated the small port of Eucla, discovered in 1863 by Captain E. A. Delisser (formerly of 79th Regiment)

named Taylor to examine them and to find a suitable watering place. After cruising about for some time the cutter was seen under sail apparently on her way back to the ship. As night came on the boat was lost sight of, and those on board became anxious, as there was no sound nor sign that she was approaching the *Investigator*. Captain Flinders, on hearing that the cutter had not returned, sent Lieutenant Fowler away with a boat to see what detained the missing craft. Two hours passed, and as the second boat did not return a gun was fired; Lieutenant Fowler at once came back, but without tidings of the missing cutter. He had found no trace of her, but he had met with broken water close by the spot where the object of his search had last been seen, which was sufficient to have upset his own boat if it had been under sail. At daylight the *Investigator* stood in towards the mainlaind in the direction in which the cutter was last sighted, and after anchoring in a small cove in which the ship was well sheltered, a boat was sent away to search for the cutter. It soon returned towing the wreck of the missing craft bottom upwards. She had been dashed against the rocks and broken to pieces. Of the crew there was not the slightest trace, nor was any ever seen. They were either carried out to sea, or, what is more probable, taken by the sharks, which at all times abound in those waters. Flinders named the cove in which the wreck was found "Memory Cove," and he left behind him a copper plate, on which the particulars of the misfortune were engraven. After designating several of the islands in the neighborhood by the names of the men who had formed the crew of the cutter, he proceeded on his voyage. The southern point of the mainland was named "Cape Catastrophe," as a memorial of the first serious misfortune that had fallen upon the expedition.

In the course of the boat expeditions in search of the cutter, a beautiful bay was discovered. This was called Port Lincoln. The harbor is magnificent, and the climate, especially in the summer months, delightful; but the country which surrounds it, except in a few places, is not good; and although at one time it was looked upon as a proper site for the capital of the colony, it has never made any great progress. After surveying the islands which form the Sir Joseph Banks' Group, the *Investigator* proceeded up the remarkable indentation which bears the name of Spencer Gulf. The coast on the western side was flat and sandy, whilst that on the east was high and bold. Near the shore it was low and not well grassed, but it rose in the distance to a fine mountain range. Flinders steered up the gulf in the expectation of finding a river, but his expectation was not realised. The shores of the gulf gradually contracted. The mountain range to the east was very near, and in the west a series of moderately high flat-topped hills was discovered.

Mount Brown was visible in the distance, but the western hills seemed to mark the end of the indentation. Flinders then determined to examine the head of the gulf. He could not take his ship into the inlet in which it terminated; he therefore proceeded onward in a boat. The inlet followed a serpentine course for some miles, between banks covered with mangroves. After considerable trouble a landing was made, but no fresh water could be found. Much disappointed, Flinders returned to his ship.

Messrs. Brown and Westall in the meantime had made an excursion to the eastern mountains, now known as the Flinders Range, with the intention of going to the top of Mount Brown. They travelled for a distance of about sixteen miles to the foot of the mount, and reached the summit early in the evening. There they remained all night without water, but they were amply rewarded for the hardships they had undergone in reaching the crest by the splendid view which lay before them. The mount is over 3,000ft. above the sea level. It is described as sublime solitude and desolation. To the west was the gulf meandering through low cliffs, topped with sand or shrubs, which in the distance looked like yellow meadows. Further in, distance merged both scrub and sand into one subdued dusky brown tint, out of which square blue blocks of tableland rose here and there in the distance. To the east was wood and plain and swelling hills, with mountains beyond, rugged and barren; but on every side, north, south, or east, the dusky brown or misty blue was not broken by a single silvery spot of water. Time has wrought a great change in this part of the country. The inlet that cost Flinders so much disappointment is now an important port, named Port Augusta, which is the centre of a large import and export trade, and the desolate looking country around Mount Brown is extensively and profitably cultivated. In the middle of March, 1802, Flinders returned down the gulf, examining the eastern side as he progressed. One large bay, called Hardwicke Bay, was discovered, but although it is safe and commodious it is not much in use. The coast as seen from the sea is low and sandy, but inland the country is fertile, and is mostly under cultivation.

After passing the southern headland of Yorke's Peninsula, which was named Cape Spencer, the *Investigator* was driven by stress of weather to take shelter under the land which lay to the south. This was at Kangaroo Island. The point which afforded the vessel protection from the storm was called Point Marsden. Beyond this was a bay, named Nepean Bay, where the vessel anchored. Flinders remained here for three days, during which he endeavored to penetrate inland, but the scrub was so dense and the trees so high, that nothing could be seen. The crew of the ship employed themselves in killing kangaroos and

skinning and preparing them for food. These animals were so tame that they allowed themselves to be knocked over with clubs without any attempt to escape. After living on salt provisions such as were then supplied to all ships, the change afforded by a most abundant supply of fresh meat must have been both useful and welcome to the crew. In gratitude for so seasonable a supply of fresh food Flinders named the place Kangaroo Island. The animals killed were of large size and weight, and it is certain that they must have been extremely numerous. Very recently nine specimens were captured on the island, though for many years it was thought that they had ceased to exist. After the crew had recruited themselves in this way, the *Investigator's* commander set sail to pursue his exploration on the coast from Cape Spencer. A broad strait intervenes between Kangaroo Island and the southern headlands of the main. This channel was named Investigator's Strait. It may be as well in this place to state that Kangaroo Island is to the south of the mainland. It is about a hundred miles long from Cape Willoughby on the east to Cape Borda on the west, and about thirty-six miles broad in its widest part. From Cape Gautheaume on the south to Point Marsden on the north the coastline is high, rocky, and dangerous to approach. It is well wooded, indeed rather thickly timbered. It contains a great deal of good land and is fairly well watered. The climate is excellent, and there is an abundance of fish all along the seaboard. It is, however, very thinly populated, and it is only in a few places that any settlers are to be found.

After quitting the island the ship headed up St. Vincent's Gulf, where Troubridge Island and Shoal were first seen. Flinders had seen Mount Lofty from Nepean Bay. As he proceeded up St. Vincent's Gulf he again saw the eminence which formed the highest peak of that mountain chain which stretched from Cape Jervis to the head of Spencer's Gulf, where Port Augusta is now established. The coast appeared low, and apparently composed of sand and rock, but the aspect of the country continually changed.

As the hills came into view the slopes appeared to be well timbered and the intervening land well grassed Smoke seen in various places denoted the existence of native camps inland. Proceeding onward for some distance the *Investigator* anchored off a sandy beach. Mangrove swamps were noticed on the horizon as the evening drew on. Next day Flinders left his ship in a boat to examine the head of the gulf. It greatly resembled the head of St. Vincent's Gulf. There were wide mud flats, at times covered with water, and an abundance of mangroves; but where the shores converged, the water was salt. There was no sign of any fresh water stream flowing into the sea. A port is now established

there called Port Wakefield. A boat's crew was sent on shore with orders to ascend some hills, now known as the Hummocks, which lay a few miles inland. They did not come up to them, because they had not made preparation to remain on shore. Flinders reached the top of a smaller elevation to gain a view of the whole of the inlet. He noticed that the Mount Lofty Range ran within a few miles of the Hummocks. The soil appeared to be sandy, but the trees were large. Between the two ranges there was a broad swampy valley, into which water ran from the hills during the rainy weather, and found its way thence into the gulf. He came to the conclusion that the eastern ridge which rose from Cape Jervis was identical with that which he had seen in Spencer's Gulf, whose summit had been ascended and named Mount Brown, and whose furthest point north was designated Mount Arden. He estimated the distance as 300 miles, but the range extends much further. The peninsula which hems in the eastern side of St. Vincent's Gulf was called Yorke Peninsula; its outline is not unlike that of Italy. The length of the peninsula is over 100 miles, its breadth at the head of the gulf about thirty-two miles, from Royston Head to Troubridge Point about forty-six miles, and from Point Turton to Sturt Bay about ten miles. The *Investigator* returned to Kangaroo Island without examining any more of the coast, except that portion which is opposite to Cape Jervis. The strait which lays between the island and the cape is not more than seven miles wide, and is named Backstairs Passage. After passing through this passage to the eastward, three small granite islands were discovered. They consisted of bare rock, and are known as The Pages. These are situated at the western extremity of that large indentation of the coast into which the River Murray flows, marked on the charts as Encounter Bay, and lying between the 138th and 140th meridians of E. longitude. This designation owes its origin to the circumstance that in this bay (longitude 138° 58″ E. and latitude 35° 40″ S.) the *Investigator* fell in with the French ship *Le Géographe*, under Captain Baudin, which was also on a voyage of discovery. She had parted from her consort, *Le Naturaliste*, in a heavy gale that had overtaken them in Bass's Straits. Captain Flinders went on board the *Géographe*, and exchanged credentials with the commander, and compared experiences. Captain Baudin had explored the coast from Western Port to the spot where the vessels met, so that the whole of the southern boundary of New Holland had been examined from east to west. Here the history of the discovery of South Australia comes to an end. A portion of it had been seen, but not examined, in 1627. That section of the province which starts from Nuyts' Point, and includes Banks' Peninsula, the Sir Joseph Banks' group of islands, the two gulfs, Yorke Peninsula, Kangaroo Island,

and that space which intervenes between Cape Jervis and the Murray Mouth, was first discovered, and to a large extent surveyed, by Flinders alone. The remaining portion, from Encounter Bay, near the Murray Mouth, to Discovery Bay, at the eastern boundary of South Australia, was claimed to have been discovered by Baudin—who, however, did not recognise, or perhaps did not know of, the discoveries of Lieutenant Grant in the *Lady Nelson*. He contented himself with naming the prominent features of the coast, without making surveys or determining longitudes. The subsequent career of Captain Flinders does not immediately concern the Province of South Australia. It was so remarkable, however, that it deserves to be briefly related.

After proceeding to Sydney, and from thence to the Gulf of Carpentaria, where he did good work, Flinders was compelled to return to Port Jackson, owing to the ravages of scurvy amongst his crew and the unseaworthy condition of the *Investigator*. He applied to the Governor of New South Wales (Capt. King, R.N.) for another ship, but, not succeeding in obtaining one, he determined to proceed to England and apply to the Admiralty. He left Port Jackson in the *Porpoise* on the 12th July, 1803, and five days afterwards was wrecked upon a reef in about longitude 150° 0″ E. and latitude 22° 11″ S. He returned to Sydney in the longboat of the wrecked vessel, and, obtaining assistance, he rescued all his crew from the reef. He then determined to sail to England in a small schooner, the *Cumberland*, of only twenty-nine tons. He reached the island of Mauritius in safety, but his little craft wanted thoroughly refitting. On landing he exhibited his passport as an explorer, but the authorities of the island would not recognise it, treated him as an impostor, and detained him in custody for six years and a half. He did not reach England till the year 1810. The history of his discoveries and his hardships was published in 1814, in which year he died, it is said, on the very day that his splendid work was published. The treatment he received from the French Government was execrable. M. Peron, the naturalist on board the *Géographe*, in his work on the discoveries made by Captain Baudin, absolutely ignored all that Flinders had done. In the French maps published, the names of capes, headlands, islands, &c., fixed on by Flinders were all changed, and French names substituted. So complete was the alteration that not even the smallest island escaped. The thoroughness of the surveys made by Flinders may be judged from the fact that surveys made a few years back by Captain Hutchinson, R.N., and Staff Commanders Howard, R.N., and Goalen, R.N., fully confirmed the accuracy of his work as far as it had gone. After the lapse of nearly ninety years they are still reliable South Australia has no monument in honor of that gallant officer, to whom its

discovery is mainly due, except an obelisk erected to his memory at Port Lincoln by his cousin, Captain Sir John Franklin, R.N., when he was Governor of Van Diemen's Land. Time, however, has done justice to his achievements. The names which he originally gave to the places he had discovered and made known to the world, have all been restored to the charts, and are now universally recognised, whilst those substituted by the French are almost forgotten. Captain Flinders was an enterprising explorer and also a scientific navigator. He was gifted with courage, perseverance, sound judgment, and unflinching fortitude. His name deserves to take an honorable position amongst England's most renowned navigators, but more especially amongst the names of those whose discoveries form a glorious introduction to the history of the island continent of Australia.

Many years elapsed from the time that Flinders parted company with Captain Baudin and the *Géographe* in Encounter Bay in 1802 before any expedition was set on foot to ascertain what kind of country lay behind the extensive coastline which had been discovered by those navigators. Whatever interest might have been aroused in England when Flinders' work was published in 1814, it soon faded out. The exciting events which preceded and followed the close of the great European struggle in 1815 left little room for considering what immediate or future value the remote territory of New Holland and its dependencies might possess for the British nation. In New South Wales the case was different. The Governors of that settlement from time to time sent forth exploring parties in various directions to acquire some knowledge of the immense territory which, with so little trouble and cost, had become a part of the Colonial Empire of the United Kingdom. It could not have been supposed even in those days that such an extent of country as that, bounded by the Indian seas on the north and west and the Southern and Pacific oceans on the south and east, could be peopled by means of the colonising plan then in force. The transportation system had not been a success as far as it had been followed out, and it must soon have become evident that discoveries of large tracts of land suitable for the settlement of white men must effect some modification, at the least, of the experimental process under which the first colony had been established at Botany Bay. In 1828 Captain Sturt, afterwards Colonial Secretary in South Australia, was commissioned by Sir Ralph Darling, then Governor of New South Wales, to explore the Macquarie river westward as far as he could and if possible to its mouth. He set out on the 10th of November, and he closed his arduous and distressing journey by reaching the Darling River in longitude 145° 33′ E. and latitude 29° 37′ S. He was not able to proceed further, and after an absence of nearly five months regained his starting

point in Wellington Valley. In the following year Sturt again started out, this time for the purpose of tracing down the course of the Murrumbidgee and all the rivers connected with it as far as was possible. It is unnecessary to dwell upon the details of his voyage, or upon the sufferings which he and his party endured. He traced the River Darling down to its junction with the Murray, and floated along that stream in the face of the most frightful difficulties, until he came into Lake Alexandrina. At the lake he saw Mount Barker, but he mistook it for Mount Lofty. He had achieved a great triumph, however, for he had traced the Murray nearly to its mouth, and thus solved the question of all the western waters from the Darling Downs to the Australian Alps. On the return voyage Sturt and his party suffered even more than they did on the outward passage, for they were worn out with exhaustion from overwork and starvation. They were just six months away, during which the party, comprising only six men, had ventured some thousands of miles in an open whaleboat through a country infested by hostile savages.

Captain Collet Barker, of the 39th Regiment, who had been employed at Port Raffles and afterwards in Western Australia, on leaving King George's Sound was directed by the Governor of New South Wales to call at Encounter Bay, in St. Vincent's Gulf. He arrived at its entrance in April, 1831. His object was to find some communication, if any existed, between Lake Alexandrina and the Gulf. Finding none, he landed in company with Mr. Kent, and penetrated so far inland as to ascend Mount Lofty. From that height they saw before them those beautiful plains in which Adelaide is situated. They examined the coast anew, again landed, and crossed the country eastward to Lake Alexandrina. When they had penetrated thus far they made their way to the channel through which the Murray flows into the sea. Barker thought it was about a quarter of a mile wide, and he decided to swim across it in order to take some bearings from a sandhill on the other side. He crossed in safety, and was seen to ascend the sandhill, and then move down towards the beach. Here all traces of him were lost. His companions waited for hours for his return. Nothing could be seen, except that there were fires all round the sandhill which he had ascended. Having given up all hope of his return, they went back to their ship. His party procured the aid of a black woman from Cape Jervis and two sealers from Kangaroo Island, and eventually ascertained the particulars of his fate. He had been attacked by the natives, who were in great numbers at the place he landed, and "as he took to the water to avoid them he was speared through the body in a dozen different places. Afterwards, the murderers said, they threw the body into the sea; but no one who knows the horrible habits of these

natives will believe that part of the story."* Mr. Kent took the command of the expedition, and, having made a short further exploration by returning up the valley of the Inman River, proceeded in the ship to Sydney. With this lamentable occurrence the history of the discovery of South Australia comes to an end. The exploration of the interior was left to be accomplished by the settlers who first colonised it, a few years afterwards.

* Discovery, &c., of Australia. London, 1865.

CHAPTER II.

BOUNDARIES OF SOUTH AUSTRALIA—ENLARGEMENT OF ITS AREA—EXTENT OF THE PROVINCE—LENGTH OF COASTLINE—RIVERS ABUTTING ON THE COAST—LAKES IN THE SOUTH-EAST—LAKE ALEXANDRINA AND LAKE ALBERT—PROBABLE CAUSE OF THEIR FORMATION—VARIED CHARACTERISTICS OF SOUTH AUSTRALIA—PROBABLE DIVISION OF AUSTRALIA INTO TWO OR MORE PARTS IN EARLIER GEOLOGIC TIMES—EVIDENCE IN SUPPORT OF THIS VIEW—THE SOUTH AUSTRALIAN MOUNTAIN CHAIN UNCONNECTED WITH ANY OTHER MOUNTAIN SYSTEM—THE ADELAIDE PLAINS—MINERAL RICHES—DESCRIPTION OF THE LEADING PHYSICAL FEATURES OF THE COLONY—EXTENT OF THE MOUNTAIN REGION—HEIGHTS OF THE HIGHEST PEAKS—THE FLINDERS RANGE—THE ADELAIDE CHAIN—THE SOUTH-EASTERN PLAIN—ITS EXTENT—FERTILITY OF THE HILLS AND VALLEYS—GEOLOGICAL FEATURES OF SOUTH AUSTRALIA—EXTINCT ANIMALS, &c.

THE territory which originally constituted South Australia—that is to say, the province established by the Act of the Imperial Parliament, 4 and 5 of William IV., cap. 95—commenced on the west at the 132nd and stretched eastward to the 141st meridian of east longitude. Its northern boundary was the 26th parallel of south latitude, from which it extended down to the Southern Ocean. Its extreme southerly limit is in about 38° S. latitude, at a point some five miles east of Discovery Bay. The area of this large tract of country was about 300,000 square miles. The fixing of the western boundary at longitude 132° E., left a space intervening between that line and the eastern boundary of Western Australia about ninety miles wide, which had not been specifically appropriated to any of the colonies, although it formed part of the territory legally belonging to New South Wales. This region, containing between 80,000 and 90,000 square miles, was added to the province of South Australia in 1861. A further addition of territory was made to the province in 1863, when all the country extending north from the 26° of S. latitude to the Indian Ocean in latitude 11° S., and between 129° and 138° E. longitude, was annexed to South Australia.

The general area of the province was thus increased (as estimated) to about 900,000 square miles. The Northern Territory, as the new region was designated, although politically a portion of South Australia, is virtually a separate country, differing from the parent colony in climate, soil, and general resources.

The south coast of the colony, which stretches over 12° of longitude, following the outlines of the Great Australian Bight, Spencer's and St. Vincent's Gulfs, and along Encounter Bay, Lacepede Bay, Rivoli Bay, &c.,

is about 1,600 miles in length. Along the whole of this immense coastline there is scarcely a single river which is navigable from the sea, except the Murray, which flows into Encounter Bay in longitude 138° 58′ E. and latitude 35° 4′ S. The entrance to the Murray is exceedingly dangerous and becomes quite unapproachable when the winds blow strongly either from the south, south-west, or west. The Glenelg River, near the eastern limit of the province, cannot be entered, its mouth being closed by a sand bar. Travelling westward from the Murray there are two rivers which open into the bay, the Hindmarsh and the Inman. Sand bars and reefs of rocks, which extend far out into the sea, effectually prevent all access to them from that direction. Following the coastline to Noarlunga, the Onkaparinga, which rises in the Mount Lofty ranges, opens into St. Vincent's Gulf, and is navigable for some distance by small coasting craft, and is used occasionally in the wheat season. The next fresh water river that is met with is the Sturt, or rather, the Patawalonga Creek, which comes down to the gulf at Glenelg. It is not navigable from the sea, although boats occasionally can be taken into it from the bay. This watercourse rises in the Mount Lofty ranges.

At a point fourteen miles north of the Sturt the coastline is broken by an arm of the sea which runs inland for about eight miles in a due south direction to Port Adelaide, which is the principal harbor of the colony. To the south and east of this estuary the River Torrens is found. It rises in the Mount Lofty ranges, near Mount Pleasant, following a tortuous course for many miles in a westerly direction until it reaches the Torrens Gorge, where it emerges from the hills and flows through the Adelaide plains. It separates North Adelaide from the southern part of the city, and thence after a course of about six miles spreads its waters over a tract of swampy land at a short distance from the seacoast, which is known as the Reedbeds. The Torrens is a large watercourse, which carries away the largest portion of the drainage from the hills which lie to the east of Adelaide. In the rainy season it often swells into a dangerous mountain torrent. In the summer months it is dry in places, although at the Gorge, ten miles east of Adelaide, where it enters the plains, the flow of water never ceases. Twelve miles north of the city another stream appears, which is named the Little Para. It flows from east to west, but its waters do not reach the sea. They are lost in an extensive swamp lying to the east of Torrens Island, near the entrance to the inlet which terminates at Port Adelaide.

About ten miles north of the entrance to Port Adelaide the Gawler River flows into the gulf at Port Gawler. Twelve miles further north the River Light flows westward from the hilly country towards the coastline, and dies out on the flats eight miles north of the Gawler River

and about two miles from the shore. North of this up to the head of the gulf, which terminates at Port Wakefield, except a creek at Port Arthur at the head of the gulf on the western side, there are only small channels which trend towards the sea, but they are unimportant, and for the most part spread out and disappear before the coastline is reached. There are no permanent streams which flow into the sea on either the eastern or western sides of Yorke's Peninsula. Indeed, along the shores of Spencer's Gulf, only one large watercourse is met with, the Back Creek at Port Broughton, midway between Wallaroo and Port Pirie.

* From the eastern boundary of the colony to Rosetta Head, at the western extremity of Encounter Bay, the coast is generally low and flat. From Cape Northumberland to Rivoli Bay it is occasionally dotted with rocks which do not rise much above the level of the sea. From Rivoli Bay to Cape Jaffa it is very dangerous to navigators, in consequence of extensive reefs of rock which stretch out from the shore, sometimes for many miles.

From Rosetta Head round to Cape Jervis the coastline is mostly bold and rugged, though, as at Tunkalilla, small accessible beaches are occasionally seen. From Cape Jervis to Brighton, on the east shore, the outline is high and rocky, and from thence to the head of the gulf an almost continuous line of sand dunes extends to its head.

From Cape Banks, in latitude about 37° 50″ S., to Guichen Bay, a distance of some sixty miles, and lying but a short distance inland from the coast, several lakes exist. Lake Bonney, one of the largest, is a long sheet of fresh water, twenty-five miles in length and seldom more than two miles wide. It is shallow, but is surrounded by moderately high banks. Next comes Lake George, about ten miles long and not more than half that distance wide in its broadest part. Lake St. Clair is much smaller, salt, shallow, and apparently drying up. Lake Eliza is separated from this by a narrow strip of land; it is about seven miles long and about half as wide. This is also salt and shallow, and shows signs of drying up. Lake Hawdon is situated to the north and east of Lake Eliza; it is more than forty miles long, and its greatest width about eight miles. This, however, is more a morass than a lake. About forty miles north-west of Lake Hawdon is the Coorong. This is an arm of the sea, having its opening not very far from the Murray Mouth. It runs parallel to the coast for about seventy miles, and is nowhere more than about four miles wide. It terminates in a small creek, which runs for some distance inland.

Two remarkable lakes lie at the mouth of the River Murray—Lake Alexandrina and Lake Albert. They are connected by a narrow strip of

* Geo. Obs. in South Australia. London, 1862.

water. The former is about twenty-four miles in its longest measurement from south-west to north-east, and about fourteen miles in width taken from west to east. It was evidently a deep bay at the period when the mouth of the Murray was at its northern end. It is very shallow, and, in consequence of the large quantities of sediment brought down occasionally by the floods, is gradually becoming more shallow still. Lake Albert is irregular in outline, and about fourteen miles long from north to south and eight wide in its broadest part. That also appears, like Lake Alexandrina, to have been a bay of the sea. It seems as if both of these lakes owed their origin to a cause like that which formed the Coorong. The upheaval of the land has raised from the sea certain eminences which existed underneath the water as banks or shoals, and these, being higher than the bottom between them and the shore, locked in the water as soon as they were above its level. The hollow of the lake was doubtless caused by the river, and the sediment brought down by it may have caused the banks, which, now being upheaved, form its southern boundary.

The observations here recorded have related principally to the coast-line and the contiguous country. So far as they have extended they do not suggest much expectation of fertile regions inland, or afford any satisfactory indications of the nature of the interior of South Australia. Little, indeed, could be inferred in this direction from the imperfect and unsatisfying glimpses of the country which were obtained by navigators as they viewed it from the sea. Scientific examinations of its chief characteristics, however, show that "there is no country more interesting in its formations or more varied in its mineralogical productions than South Australia. Lofty mountains, extensive and fertile plains, sandy deserts, and inland seas are all included in its far-stretching boundaries. With a climate like that of the south of Spain, it possesses the scenery of the Highlands in some places, whilst in others deserts like those of Arabia, and vieing with them for bleakness, aridity, and burning heat. There are chains of salt lakes which render unprofitable a larger area than England. There are marshes and salt swamps more dank, unwholesome, and extensive than any in the United States. There are rocky precipices and chasms and waterfalls to rival almost the Alps. There are extinct volcanoes of large dimensions almost as numerous as those of Auvergne. And, finally, there are caves which exceed in magnitude the Guacharo Caves of Humboldt, or, in stalactites, the Antiparos of the Ægean Sea."*

The limits of a work like this forbid any lengthened exposition of all the evidences on which these assertions rest. The accumulation of the

* Geo. Obs. in South Australia. London, 1862.

facts has spread over many years in point of time, and has taxed the energies of many men whose bravery, perseverance, and self-sacrifice could alone have accomplished the arduous tasks which they set for themselves, and whose labors have added so much to the imperishable records of natural science in this portion of the globe. All that can be accomplished in these pages is to give a general outline of the results which have been attained. Flinders was the first to discover the most remarkable physical features of this portion of New Holland in tracing out Spencer's Gulf and its neighbour, Gulf St. Vincent. These singular indentations present an immense coastline, and with various bays and shipping places, which are now in daily use, make up in one respect for the absence of navigable rivers. It is supposed that the deep indentations in Spencer's Gulf, Gulf St. Vincent, Yorke's Peninsula, Cape Jervis, and Kangaroo Island indicate that there was formerly a separation of the continent into two portions prior to the deposition of the Cretaceous formation. There is no similar indentation along the coast until the Gulf of Carpentaria is reached, and the separation must have been along an irregular line drawn between the Gulf of Carpentaria on the north to the head of Spencer's Gulf on the south. Some of the reasons are that at Cape Jervis a mountain range commences, which runs nearly north and south, and this is bounded on the east and west by Tertiary deposits. These beds thin out to the east very near to the boundary line between South Australia and Victoria, and are immediately succeeded by extinct volcanoes and altered Primary rocks, which do not appear to have been covered by any Tertiary sea. To the westward of the same range the beds have been traced through the greater portion of the Great Australian Bight, until they are terminated by the Primary rocks of Western Australia, which also do not appear to have been covered by a Tertiary sea. Thus we have the east and west sides of the continent occupied by Primary rocks, and the centre by Tertiary beds, enclosing an abundance of fossil shells. This is pretty strong presumptive evidence of their previous separation.

Again, Spencer's Gulf bears most unmistakable signs of having formerly been much larger, or rather to have been better filled by the ocean than it is at present. To the end of Spencer's Gulf there is an uninterrupted tract of waste marshy lowlands, continuing far due north, which has been found wherever examined (with some small exceptions) to consist of limestone with recent marine shells and salt water, while other parts are immense plains of shingles without any shells, probably portions of the ocean bed which were too deep for the support of any animal life. Geologists are not well acquainted with the exact nature of the rocks round the Gulf of Carpentaria, but it is not unlikely that

they are Tertiary. The high land of Cape York on the eastern side is known to be Primary, as also the highest land in Arnheim's Land. This would certainly seem to correspond with the opening for Tertiary beds at the Southern Alps. It is not, therefore, hazarding too much to say that a sea has at no very distant period rolled between the east and west portions of the continent. It may be mentioned that Yorke's Peninsula, which divides the southern gulf, is composed partially of Tertiary rock, and therefore shows its existence to have been cœval with the continent itself.*

Mr. H. Y. L. Brown, the Government Geologist, states that since the above was written (1862) the progress of geological inquiry has resulted in showing that enormous deposits belonging to the Mesozoic period occupy an extensive deep basin existing in the interior of Australia, covering portions of New South Wales, South Australia, and Queensland. These, being pierced, have yielded very large quantities of artesian water; boring operations have thus been encouraged, and pastoral undertakings greatly promoted.

There is other evidence in support of the theory of the separation of New Holland into two parts. The author of the above quoted observations, in some essays on the age of the Australian continent,† says:—"Australia has a marvellous, unaccountable difference in the flora of her east and west sides. From this it is inferred that there must at one time have been a separation between the two parts of the continent. This inference may not seem clear, but other facts confirm it. For instance, there is a greater difference between the flora of Victoria and that of Western Australia than there is between that of Victoria and that of the rest of the world; and it is remarkable that the genera are the same. Gumtrees, honeysuckles, tea-trees, and acacias abound in both. There are 133 acaciæ, fifty-five eucalypti, twenty-seven melaleucæ, and fifteen banksiæ in south-east Australia, according to Hooker, and not one of the same species is found in Western Australia; yet the same district has 100 melaleucæ, ninety-nine acaciæ, forty-six eucalypti, and thirty-eight banksiæ. This is singular enough, and strongly confirmatory of the inference that a former separation existed between the two parts. But there is another proof: the intermediate country, instead of having its own species and being a peculiar botanical province, is strictly intermediate in character too—that is to say, its flora is made up of plants which are common to both west and east Australia. The trend or trough of the continent in which a basin of salt lakes lies is the point of the junction of the two provinces. It is therefore an inference almost as certain as a matter of fact, that, as the centre of the south side of the continent was gradually raised from the waters, it became colonised by a flora which spread down from the

* Geol. Obs. S.A., pp. 16 and 17. † J. E. Tenison Woods, *Australasian*, 1866.

east and west sides, and had there been any union between the two parts of the continent on the north side the distinctive features of the two sides would not have been so well preserved." *

As far as scientific investigations go, there now can be little doubt that the existing territory of New Holland was not originally one immense island, but consisted of two, and possibly more, distinct portions with seas intervening between the separate parts.

When Flinders took refuge in Nepean Bay, Kangaroo Island, he named the headland which was prominent on the north side of Backstairs Passage, Cape Jervis. From this point starts the mountain chain which stretches northwards beyond the head of Spencer's Gulf. The highest point is Mount Lofty, 2,334ft. above sea level. This range of mountains is not connected with the mountain systems of the neighboring colonies. It has been supposed that at one time the hills were much higher than they are now, and there are evidences which suggest that in earlier periods there were glaciers. Traces of these were seen by Selwyn at the Inman river, and the writer of these pages has noticed them in the gorge of the Torrens, which flows through the mountains at a distance of some ten miles east from Adelaide. Still more marked evidence of glacial action may be seen at Hallett's Cove, on the seacoast at Black Point, about fourteen miles south-east of Adelaide. Doubtless more extended and substantial evidences will be forthcoming when the South Australian chain shall have been more minutely explored and examined than it has been up to the present day. The South Australian chain, as already stated, is bounded on its eastern and western sides by recent Tertiary beds. The eastern side consists of an extensive fertile plain, which extends from Brighton, on the east coast of Gulf St. Vincent, up to and round its termination. The whole of this plain is now cultivated. In the valleys formed by the hills and on the uplands all through them, some of the finest agricultural land in the province is situated. The hills themselves abound in minerals of various kinds, which will be noticed in the proper place. Without entering here into the special characteristics of the South Australian chain, a general view of its principal features will be found interesting. Mr. Tate, Professor of Geology in the Adelaide University, describes them as follows :—†

"The mountain ranges in South Australia proper follow the general direction of the two gulfs, St. Vincent's and Spencer's. The elevated regions of the southern portion of the province occupy three well-defined areas, separated from each other by the gulfs mentioned; but in the northerly extension they approach each other, and to the north of Lake Torrens no well-defined mountain system exists. Our ranges are of a rather composite

* Tenison Woods, *Australasian*, 1866.

† Anniversary Address, Adelaide Philosophical Society, 1878-9.

character, consisting of parallel ridges, often separated by deep and plain-like valleys. This feature is most prominent to the north of Kooringa. The first group is that of the Adelaide chain, commencing at Cape Jervis and occupying the coastline to the north as far as Normanville and to the east as far as Port Elliot, and continues with varied height in a nearly northerly direction to beyond Lake Frome, a distance of 350 miles. It attains its greatest elevation in the Mount Lofty and Barossa districts, and its chief and highest points are Mount Lofty, 2,334ft.; Kaiserstuhl, 1,973ft.; Lagoon Hill, 2,235ft.; and, north of the Burra, Mount Cone, 2,601ft.; and Razorback, 2,834ft. It is very little interrupted in its course, and that only by a few narrow gorges through which are discharged our insignificant rivers, emptying themselves into St. Vincent's Gulf. Two spurs are thrown off on its western side within our immediate district (Adelaide), one terminating in the sea cliffs between Marino and Morphett Vale, and the second in those forming the southern boundary of Aldinga Bay.

"The second group is that of the Flinders Range, which commences on the elevated land of northern Yorke's Peninsula in the conspicuous hills termed the Hummocks, at the head of St. Vincent's Gulf; thence it follows a curvilinear line, with a general northerly direction, round to the head of Lake Torrens. The east coast of Spencer's Gulf has the same general direction as this chain, to which it is in close proximity, and, because of the small annual rainfall (about 12in.), though the elevation of the range is higher than that of the Adelaide chain, the rivers are all short, and for the most part do not reach the sea or Lake Torrens. The highest points of this range are amongst the highest in South Australia. They are the Bluff, 2,404ft.; Mount Remarkable and Mount Brown, about 3,000ft. All these elevated regions are constituted of the fundamental rocks and their associated granites.

"The Adelaide chain is bounded on its west side by the vast and fertile plain of Adelaide, which extends from Marino on the south, and sweeps round the head of St. Vincent's Gulf on the north. No inconsiderable portion has been removed by the action of the sea, as it is abruptly terminated on the shores of Holdfast Bay and at Ardrossan on either side of the gulf. The period of its formation is comparatively recent. Plains of like character are interspersed in longitudinal bands among the parallel ridges of the Flinders Range and the northern extension of the Adelaide chain, though not one is equal in magnitude to the Adelaide Plain. The two southern spurs of the Adelaide chain enclose undulating plains, in part partaking of the character of the Adelaide Plain, but mainly constituted of rocks of much older deposits (?), though of Tertiary date; the northern one is the Willunga Plain; the southern, the Myponga Flat.

"On the eastern side of the Adelaide chain there stretches far and wide the plain of the south-east, towards the western boundary of which flows the Lower Murray. The dimensions of this plain extend about 290 miles from north to south, and on an average of 100 miles from east to west. The general level, which is broken by low ridges, does not exceed 200ft. The rocks composing it are of the same age as those composing the Willunga Plain and the lower tracts of Yorke's Peninsula. The prevailing uniformity of scenery is relieved in two limited areas by isolated hills of granite and volcanic materials, and towards the seaward by immense swamps. No rivers originate in this plain, though a few short ones traverse its western margin in their passage from the Adelaide chain to the River Murray.

"To the north and west from Lake Torrens there stretch almost illimitable plains somewhat similar in their character to the portions of the south-east plain. The western section is probably conterminous with the Bunda plateau around the head of the Great Australian Bight."

The interest which the "Hills," as they are called, afford to those who may visit them cannot be foreshadowed by Professor Tate's description of their physical features. They abound in wonderful scenery. They are everywhere full of the most fertile valleys in which the inhabitants are able to produce fruits and vegetables of most European kinds that are difficult to grow on the hot plains, lying west of the mountain system which forms such a magnificent background to the city of Adelaide on its southern and eastern sides.

Lakes do not exist in or near them, but abundance of excellent water is found in the valleys, and they provide a delightfully cool resort in the hot season. Here, indeed, are found summer homes, which in healthiness and coolness of temperature more than rival many of the watering places which lie upon the coast. From a few of the high portions of the hills, which front the west, the prospect is marvellous. Kangaroo Island, about ninety miles away, may be distinctly seen from the tops of some of the hills, and even the lower outline of Yorke's Peninsula can be plainly traced when the sunlight is not too strong.

The hills, however, have attractions beyond those which interest the traveller, who looks only for grandeur of mountain scenery. They indicate material wealth, for they are full of mineral riches. Gold, silver, copper, iron, and lead are found amongst them, and other minerals of greater or less commercial importance. Emeralds, diamonds, and other valuable gems have been found in various places adjacent to and subsidiary to the ranges. At Encounter Bay, near the mouth of the *Inman river, gem sand is found, which contains in minute forms some varieties of precious stones of commerce.* The mineral resources of the colony are great, and will be noticed further on.

The following observations by Mr. H. Y. L. Brown, Government Geologist, furnish a brief account of the geological features of South Australia:—

"Plutonic Rocks.—Granite outcrops in small areas near Kingston and in the various places in the Ninety-Mile Desert (S.E. district), at Port Victor, Murray Bridge, Kangaroo Island, Yorke's Peninsula, near Port Lincoln, Streaky Bay to Fowler's Bay, Pidinga, Prichard Desert, the Warburton ranges, &c., and in larger and more extensive masses in the north-east, near Boolcoomata, Thackaringa, near Mount Babbage, and Mount Adams, north of Lake Frome, and is reported to constitute the prevailing rock of the Musgrave Ranges, in the north-west of South Australia proper. Porphyry, felspar porphyry, syenite, granulite, and greenstone are generally found near, or associated with, these rocks, the Gawler Ranges being principally composed of felspar porphyry.

"A decomposed amygdaloid trap occurs in the neighborhood of Wooltana, near Lake Frome, in connection with greenstone porphyry and serpentine rocks. With all the outcrops of granite rocks metamorphic gneiss and granite are associated, into which igneous dykes have been injected. These dykes are numerous in most of the old metamorphic and sedimentary rocks, and doubtless are of many different ages. On Yorke's Peninsula there are granitic and metamorphic rocks unconformably overlaid by beds of crystalline fossiliferous marble, grit, conglomerate, &c., which are considered to be of Lower Silurian age.

"In the main range, extending from Cape Jervis, in the south, to Mount Babbage, its northern extremity, there are dykes of granite, greenstone, porphyry, &c., which have been intruded into the stratified rocks, which are nowhere seen to overlie them uncomformably—it is probable, therefore, that the granite rocks of Yorke's Peninsula are of a much greater age than those of the ranges extending from Cape Jervis northwards.

"As a proof of the time which has elapsed between the intrusion of the various plutonic rocks, it has been observed that some of the old conglomerates containing granite boulders have been pierced by veins of a more recent granite.

"Metamorphic rocks, azoic or silurian gneiss, conglomerate, micaceous and hornblende schists, clay and micaceous slates, crystalline limestone or marble, quartzite, &c., are found to occur over all the area occupied by granite rocks, and in conjunction with them. Into these, dykes of igneous rocks and masses are intruded. Some of the metamorphic, gneissic, and granite rocks consist of conglomerates containing water-worn pebbles, and boulders with crystals of felspar.

"Silurian Rocks.—These consist of inclined conglomerates, grits, quartzites, sandstones, limestones, dolomites, clay, and micaceous slates and shales. No fossils have been observed in them generally, and, so far as examined, they appear to be of the same age as the more highly metamorphic rocks, but are less altered through the absence of intrusive dykes. The crystalline limestones of Ardrossan contain trilobites and corals which have been recognised as Lower Silurian. There are bands of similar limestone on the eastern side of St. Vincent's Gulf, interbedded with the slates and quartzites of the Mount Lofty Range.

"West of Port Augusta, and in other places to the eastward, there are quartzites, shales, sandstones, and conglomerates in undulating and horizontal beds, which are apparently an upper series of rocks which may be of Devonian age, although no fossils have hitherto been observed in them.

"The highly metamorphic, azoic, and silurian rocks extend in more or less continuous ranges from Kangaroo Island to Mount Babbage, near the head of Lake Frome, and to near Mount Nor-West, with a north-easterly extension in the direction of the Barrier Ranges, in New South Wales.

"Smaller patches occur on Yorke's Peninsula, the Port Lincoln District, the Dennison and Warburton Ranges, and east of the Musgrave Ranges.

"These are the mineral-bearing rocks, and in them copper, lead, gold, manganese, and other metals have been discovered, and in many cases worked, over a distance extending from south to north of more than six degrees of latitude.

"Mesozoic Rocks (Cretaceous or Oolitic).—A large portion of the interior northward of the main range, extending into Queensland, New South Wales, and Western Australia, is occupied by rocks of mesozoic age. They occupy a depression, of which Lake Eyre is the lowest part. The physical aspect of the country is that presented by table hills and table lands, plains, and stony and sandy deserts, with vast salt lakes, such as Lakes Eyre, Frome, &c., into which discharge large watercourses and creeks, which are liable to floods during long intervals, sometimes for years, caused by rain which falls on the surrounding ranges, which in some cases are hundreds of miles distant.

"This region was originally a basin, which is now filled with more or less horizontal beds of clay, slate, limestone, gypsum, sand, gravel, &c., overlaid in patches by a yellow jasper rock, known as desert quartzite, fragments of which are strewed over the surface of the plains and downs.

"This is the chief artesian water-bearing formation. The greatest depth at which a flowing or artesian well has been met with is at Tarkanina, where a large supply was struck by boring, at a depth of 1,200ft.

"Tertiary Rocks.—The largest portion of South Australia is covered by Tertiary and post-tertiary deposits.

"Older tertiary rocks are found along the coast, from the Victorian border, near Mount Gambier, to Eucla, on the West Australian border. They extend inland for a considerable distance, up the Murray River, on the eastern side of the Mount Lofty Ranges; and occupy smaller areas at near Port Willunga, on Yorke's Peninsula, and various other places, at generally a less elevation above the sea, although, in one or two instances, cappings are found at a higher elevation.

"They consist of coralline and shell limestones, sandstone, clay sands, calcareous sandstones, and argillaceous limestones, rich in fossils.

"The Nullarbor Plains, in the western portion of the province, between Fowler's Bay and Eucla, are composed of hard crystalline limestone, resting on soft chalky limestone with flints. These beds form perpendicular cliffs, rising from 250ft. to 300ft. along the coast between the two places named, the formation extending inland over 100 miles. Fossils are very plentiful in these rocks wherever found.

"Middle tertiary beds of limestone, calcareous sandstone, sandstone, shell limestone, &c., overlie the older tertiaries along the coast.

"The volcanic rocks, consisting of basalt, lava, scoria, ash, &c., of the Mount Gambier district, are of a newer age than the older tertiary limestone. Mount Gambier and Mount Schank are two of the principal points of eruptions. Volcanic rocks also occur in the Mount Burr Range, not far from Mount Gambier.

"Pliocene Tertiaries.—Old river deposits, which appeart o be of the same age as the old gold drifts of Victoria and New South Wales, occur as cappings, and covering large areas, at elevations sometimes amounting to 1,000ft. above the sea, at the Mount Lofty and other portions of the ranges. It is evident that they are the remains of an old river system.

"Where prospected, as at Barossa and Echunga, gold has been found in them. A very large area still remains available for this purpose in the neighborhood of these goldfields and elsewhere.

"Post Tertiary and Recent.—All the previously mentioned rocks are, to a less or greater extent, covered over in patches by a varying thickness of alluvium. Sand in dunes, as along the coast, or in wide undulating plains and ridges, as in the interior. The extent of country covered by these hills and rivers is very great.

"*On the seacoast at a place called Hallett's Cove, in the hundred of* Noarlunga, and distant from Adelaide in a south-westerly direction about eleven miles, ice-marked rocks are seen. The cliffs forming the northern boundary of this cove consist of purple shales, slates, and quartzites, which have been contorted and twisted into an anticlinal, the crown of

which extends along the edge of the crown northward for some distance, forming a narrow strip of rock outcrop; the latter is observed to be polished, and sometimes striated. The most southern of these exposures is immediately over the end of the anticlinal. Here, at a height of about 60ft or 70ft. above the sea, on the top of the cliff, over an area of some 30 square yards, the rock has been smoothed and striated. This floor dips S.S.W. at an angle of about 10°. The groovings are of all sizes up to ¼in. in width, with a depth of about $\frac{1}{16}$in. The general direction of the grooves is from N. 30° W. and N.W. to W.N.W. The rock is a purple slaty shale.

"The second exposure is close to the edge of the cliff, about 300 yards further northward. The polished and grooved rock is here a hard quartzose sandstone, at a height of about 50ft. or 60ft. above the sea. The area exposed is some 12 or 15 yards; it dips west at an angle of from 25° to 30°, and the direction of the grooves is north and south along it in horizontal and inclined lines. Boulders, pebbles, and shingle of gneiss, granite, and quartzite, sandstone, limestone, slate, &c., together with ragged blocks and masses of grey limestone and limstone boulder conglomerate, on a brittle shale and clay, are scattered about on the slope of the hill above the ice-scratched rock. The ice-grooves and polishing of the rocks appear to have been caused by floating drift ice in narrow channels, or along the shore, the boulder drift having been deposited on the melting of the ice which stranded on the spot."

In many parts of the province the remains of huge extinct marsupials have been discovered, such as *Diprotodon*, the *Macropus Titan*, &c. Fossil bones of cetacea have been found on the banks of the Murray, with shark's teeth, &c. An immense shark's tooth, over 5in. long and 4in. wide at its base, was picked up at Lake Hope some years ago, and is now in the museum at Adelaide.

It will be understood that a thoroughly complete survey of the geological features of the country has not yet been made. Investigations of this kind in this colony do not date back for more than thirty-two or thirty-three years. In future days, when more time and money can be devoted to accomplish an exhaustive geological survey of the colony than are expended upon the work at the present time, it may be expected that many interesting and important discoveries will be recorded, which will add largely to our knowledge of this part of Australia, and not improbably to some extent qualify existing ideas as to its early history.

CHAPTER III.

South Australian Fauna—Animals—Birds—Reptiles—Insects—Fishes.

The native animals which inhabit South Australia are identical with many of those which are common to other portions of New Holland. It has no species peculiar to itself, and none are found there which are not found in other parts of the continent. Various species of kangaroo *(Macropus)* were abundant all over the colony wherever there was food for them, although they have now entirely disappeared from the settled districts for a long distance both north and south of Adelaide.

In those parts of the country where scrub abounds and there is still shelter for them, wallabies *(Halmaturus)* of various kinds are still plentiful. Bandicoots *(Parameles)* existed in considerable numbers on the grassy plains before settlement and cultivation drove them away. Kangaroo rats *(Hypsiprimnus)* were also at one time numerous, but they have almost ceased to exist within the settled areas. The native bear *(Phascolarctos)*, thought to be peculiar to New South Wales, has been found, though rarely, in the Murray scrub. The wombat *(Phascolomys)* is abundant in the south-eastern district, where it lives in holes under the limestone crust which covers a considerable part of that country. The opossum *(Didelphys)* abounds wherever there are large trees, such as the gum, &c., in which they live in holes and hollows high above the ground. These animals are most destructive to gardens which may be near their haunts. The native cat *(Dasyurus)*, a carnivorous marsupial, and the *Phascogale*, also carnivorous, are fairly distributed over the country; the former are occasionally migratory, and they are both destructive to poultry. The duck-billed platypus *(Ornithorhyncus paradoxus)* inhabits South Australia, but is very rarely found. A dead specimen, brought down by a flood, was found floating on the Torrens Lake last winter. Mr. W. Forester, of the Railway Department, saw it and lifted it into his boat, but it was so much decomposed that he was obliged to throw it back into the water. It must have been washed away from some of the creeks which empty themselves into the River Torrens on the western side of the Mount Lofty ranges. The brush-tailed ant eater *(Myrmecobius)*, and the spiny ant eater *(Echidna)*, are also very rare.

One of the great pests of the colony is the dingo, or native dog, which abounds in the northern and south-eastern pastoral districts. It is believed by naturalists to have been introduced into Australia. It is most destructive to sheep, and the settlers wage constant war upon it.

Of late years its numbers have been much reduced. It is savage and cowardly, but has not been known to attack man.

There are several kinds of rodents (*Hapalotis*, *Mus*, &c.), and a few water rats, vampires, and bats of various species are enumerated amongst the fauna of the province, though many of them are rare.

*In the late Mr. Harcus' work on South Australia, Mr. F. G. Waterhouse, C.M.Z.S. and F.L.S., then curator of the Adelaide Museum, supplied a list of South Australian mammals which enumerates twenty-seven of different genera, and of marsupials notices forty-three.

A new animal was discovered in 1890 on the Idracowra run, a cattle station comprising several hundred square miles of country in the southern part of the Northern Territory of South Australia. It is a marsupial mole and is named *Notoryctes typhlops*. It is about 5½in. long. The fur may be described as being generally of a light fawn color, long, soft, and of a bright lustrous and silken appearance; in parts it deepens to a glistening golden hue, and in others it inclines more to a silvery aspect. Perpetual burrowing seems to be the characteristic feature of its life. It enters the sand obliquely and travels underground for a few feet or for many yards, not apparently reaching a depth of more than 2in. or 3in., for whilst underground its progress can often be detected by a slight cracking or moving of the surface over its position. In penetrating the soil free use as a borer is made of the conical snout with its horny protecting shield, and the powerful scoop-like foreclaws are also brought into play. As it disappears from sight the hind limbs as well are used to throw the sand backwards, which falls in again behind it as it goes, so that no permanent tunnel is left to mark its course. Again emerging at some distance it travels for a few feet upon the surface and then descends as before. In this singular animal no eyes are visible externally, and the smallest opening through the skin corresponding to their position cannot be detected. The ear openings are distinct, though almost completely concealed by the fur, which grows right up to their margins. The tail is hard, tough, and leathery in texture and appearance, and for the greater part is marked with conspicuous annular ridges down to the point. It is thick at its insertion and tapers down to a blunt or knob-like tip. The marsupium, or pouch, is reflected backwards. These animals do not appear to be numerous. All the specimens hitherto obtained have been found within a circumscribed area, about four miles from the Idracowra station, on the Finke river, in Central Australia, and almost invariably amongst sandhills. It is said also to have been seen south of the Macdonnell Ranges, and one specimen was found drowned at Tempe Downs, 120 miles south of Alice Springs. There are some excellently

* South Australia: Harcus. London, 1876.

preserved specimens in the Adelaide Museum.* It is supposed to feed on ants and other insects, *debris* of these having been found in its intestines. The *Notoryctes* is a marsupial in all essential details, yet in its outward form, and especially in its strong digging limbs and rudimentary eyes, it resembles the true moles *(Talpæ)*. It is still more like the moles of S. Africa and the *Chrysochloris*, both of which genera belong to the *Insectivora*, an order which is not represented in Australia.

As regards birds, none of the leading orders are wanting in South Australia. The genera of representative species are all closely allied to the birds which occupy similar positions in other countries—eagles, hawks, harriers, and owls fill their usual positions. The swallow and its congeners come and go as regularly in the southern parts of Australia as in England, and so do the cuckoos. There are many other birds which migrate thus, but the extent of their journeys has not been ascertained. In South Australia there are swifts, swallows, martens, and flycatchers, and also goat suckers *(Podargus)*. Petrels, gulls, albatross, terns, and penguins, frequent the coasts, and there is an abundance of cormorants in all the estuaries and rivers. Pelicans are found in both the north and south parts of the colony, on the sandy spits and patches of the streams. The swamps and lagoons are covered with ducks, grebes, rails, &c., of the same types as those inhabiting the northern hemisphere, but in almost every case of distinct species. The number of ducks is truly surprising, and one writer stated that he had travelled in winter along the River Murray and the long estuary of the Coorong, and for upwards of 120 miles he was never out of sight of large flocks which literally darkened the water and air†

The special features of the birds of Australia are its parrots, its mound building birds, its bower birds, and certain anomalous passerine genera which have no parallel in other parts of the globe. There are no vultures and no trogons. There are over sixty species of parrots, scarcely any of which are found outside Australia and its islands. They include the cockatoo parrot (a beautiful little bird), the cockatoo (three species), many varieties of the rosella parrot *(Platycercus)*, grass parrots, grass parakeets, lorikeets, &c., &c. There are large numbers of pigeons, the most beautiful being the bronze wing, of which there are seven species; there are also owls, goat suckers, herons, bitterns, spoon bills, ibis, black swans, and other birds too numerous to mention in detail. The order *Raptores*, or falcons, has twenty-six representative species in South Australia.

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* A full description of this singular creature appears in the transactions of the Royal Society of South Australia, 1891, by E. C. Stirling, M.D., Cantab., and F.R.C.S., Eng., Lecturer on Physiology in the University of Adelaide.

† Essay on the Natural History of New South Wales: Tenison Woods. Sydney, 1882.

Strigidæ, or owls, 7; night jars, 4; swifts, 2; swallows, 5; kingfishers, 9. *Meliphagidæ*, or honey eaters, 45; cuckoos, 11; *Psittacidæ* (parrots and cockatoos), 37; *Charadridæ* (plovers and dottrells), 18; herons, 24; pelicans, 11; grebes, 3; penguins, 1. But it is needless here to extend the list. Those who desire to go fully into this portion of the natural history of South Australia can refer to Gould's magnificent works on the subject.

The bower birds (*Chlamydera nuchalis* and *C. Maculata*), which are found only in the interior far away from all settlement, are peculiar in their habits. In addition to their nests they build bowers on the ground several feet long, which they adorn with shells and various trifles they pick up in the bush. These bowers are used as playgrounds, and that is all can be conjectured. The laughing jackass (*Dacelo Gigas*) is widely distributed, but does not live far from water. It is remarkable for its weird laughter-like cry; so also the magpie of the colonists for its curious musical note. These birds are easily tamed, and will remain about a house unconfined; they make most interesting pets, and the magpie can without much difficulty be taught to repeat words and to whistle scraps of tunes.

One bird which is peculiar to Australia deserves special notice—the emu (*Dromanius*). It stands about 5ft. high and has no wings; the feathers mostly are harsh, coarse, and hair-like, and of a dusky greyish-brown. They live mostly on the plains not far from scrub, in which they breed. They are hunted for the sake of their skins, which make neat mats, and for their oil, which is said to be efficacious as an outward application for rheumatism. The natives hunt the emus for food. These birds are easily domesticated; that is, if not hunted about they will stay about the stations of sheepfarmers in the bush. There are two living species, and one, extinct, of much larger size named by Professor Owen *Dromornis Australis*. South Australia has no birds of song, though there are many whose notes are distinctly musical. There is only one kind of crow (*Corvus Australis*), which is distributed all over the continent of Australia.

The lyre bird (*Menura superba*) is famed for its beautiful and graceful plumage. The tail feathers take the form of the ancient classic lyre, and have eyes, at the upper ends of the two principal plumes like the spots which are spread over the tail of the European peacock. These birds were always difficult to procure, but they are becoming more rare year after year, in consequence of the merciless and inconsiderate manner in which they are destroyed by bushmen for the sake of their feathers.

The native pheasants, or mound-making birds (*Leipoa ocellata* and *Megapodius tumulus*), lay their eggs in a few leaves and twigs,

surrounded by large mounds of sand, which the birds scrape together for the purpose. The eggs are left to hatch themselves by the heat of this compost heap. The eggs of the *Leipoa* are so thin that the birds could scarcely sit upon them without breaking them. They are generally found in desert scrub, are of large size, and much esteemed as articles of food.

Most of the native birds are protected during portions of the year. During these times it is illegal to shoot them, to have them in possession, or to expose them for sale. The bustard, or wild turkey *(Choriotis Australis)* is very widely distributed. These birds afford excellent sport during the open season, but, however, are very shy, and generally not easy to approach. They are splendid birds for the table, being of large size and of excellent flavor.

In former years quails were very abundant. They were obtainable in the sandhills on the coast, all over the plains, and on the slopes which stretch down from the hills. They still are seen about the wheatfields at harvest time.

The aborigines are exempt from the operation of the statutes which determine the close seasons.

The kangaroo *(Macropus major)*, whose skin is of considerable commercial value, is now protected during certain months. In the South-East, that is that part of the colony which lies between the Murray and its eastern boundary, some years ago a premium of so much per head was paid for its destruction. Kangaroos were so numerous that the settlers found that the number of sheep which the runs were able to carry was seriously restricted in consequence of their enormous consumption of grass. They were rounded up in droves and slaughtered in hundreds. On one station alone £800 was paid in one year for their destruction, and that, at 6d. per head, gave a total of 32,000. This was only a small part of what was done in the whole district. From the nature of the country, and the shelter they are able to secure amongst the ferns and in the scrub which abounds there, it is not likely that they will be exterminated. Their numbers, however, have been greatly diminished of late years in the good country. The increase in the value of their skins has prompted the Parliament to pass a special Act (No. 527 of 1891) to protect them, and prevent their wholesale destruction. Those who admire and pay long prices for seal skins and other furs might well turn their attention to the beautiful skins which are obtainable all over Australia. It is true that fur is not in much use in this part of New Holland as a defence against the cold, but feminine fashions have quite as much influence in the Sunny South as elsewhere, and tippets, boas, and muffs of the skins of native animals are not altogether disregarded.

The *Reptilia* in South Australia are not very numerous. There are

some two or three species of frogs, but lizards are more abundant. The largest of them (*Hydrosaurus*) inhabits the gullies in the Mount Lofty Ranges and the plains in various parts of the country. One specimen in the museum measures nearly 5ft. from the muzzle to the tip of the tail. The jew lizard (*Amphibolorus barbatus*) is common. It is remarkable for a peculiar frill about the neck, which appears not unlike a beard, from which probably it derives its common name. Another kind, known as the sleepy or club-tailed lizard, is found amongst the sandhills on the coast and on the plains, and is probably identical with the *Trachysaurus* of New South Wales. The most singular lizard found in South Australia is the *Moloch horridus*. It looks ugly, but is harmless. It is 6in. or 7in. long, and covered with large curved spines, very sluggish in movement, and easily captured. Its food consists of ants and small insects. The reptile is most common in the region of Port Augusta, at the head of Spencer's Gulf. It does not live in captivity.

Snakes, both venomous and harmless, are denizens of the colony, but they are not very numerous. There are twenty-two species, of which the majority are poisonous. The "death" or "deaf" adder (*Acanthopis*) is frequently met with in the scrub and in solitary places. Its bite is most deadly. The genus *Hoplocephalus* frequents moist grassy places and the herbage bordering upon swamps. There is also the *Pseudychis porphyriaca*, or black snake. All of these are dangerous, their bites being frequently fatal within a few hours. Although there are a few which are non-venomous, it is wise to avoid snakes of every sort. As a rule these reptiles always glide away when human beings approach them, but if surprised they are likely to attack an intruder. Accidents from snake bite are often recorded in the other colonies which are followed by fatal results. Generally here the settlers do not trouble much about them, except to kill them when they can, and very few casualties from this cause are heard of. The natives eat all kinds of snakes, but they will not touch those which they have not killed for themselves. The flesh of snakes, as well as of lizards, is said to be delicious. It is white and tender, not unlike that of chicken.

Mr. Zietz, of the South Australian Museum, has prepared a list of the *Ophidia* which inhabit the colony. He enumerates twenty species which have been described and defined, and two whose species is uncertain Four species are considered to be peculiar to South Australia, viz., Peters' blind snake (*Typhlops bituberculatus*), the Port Lincoln snake (*Hoplocephalus spectabilis*), Flinders' snake (*H. ater*), and Masters' snake (*H. Masterii*). The two species of blind snake (*Typhlops bituberculatus* and *T. nigrescens*), and also the carpet snake (*Morelia variegata*), are not venomous. All the other snakes found in South Australia are venomous.

and five species are dangerous to mankind, viz., two species of black snake (*Pseudichis Australis* and *P. porphyriacus*), two species of *Hoplocephalus*, and the "death" or "deaf" adder (*Acanthopis antarctica*).*

A peculiar long-necked tortoise (*Chelodina longicollis*) inhabits the River Murray, and a few other fresh-water streams. It is not of large size, seldom exceeding 9in. in length in the carapace and 6in. or 7in. in width. Its very long neck projects sometimes as much as 7in. from the carapace. They are eagerly sought after by the aborigines for food, and the colonists are not at all insensible to their gastronomic value.

Entomologists will find a wide field for their investigations in South Australia. It possesses numerous varieties of *Coleoptera*, or beetles: *Hymenoptera*, or flies and wasps; and *Hemiptera*, or bugs. It is also well endowed with *Lepidoptera*, or butterflies and moths. It is a scientific fact that in all these orders the peculiar characteristics of the insects of Australia are so marked that an expert would at once know any specimen from New Holland. Amongst the *Hymenoptera*, *Diptera*, *Hemiptera*, and *Neuroptera*, not much has been done in Australia towards describing and cataloguing the different species. It is noticeable that most of the familiar forms of insect life find their representatives here. Thus there are dragon flies, wasps, hornets, and bees. Mosquitos are very abundant and in many varieties in moist places, and in all swamps, both on the sea-shore and inland, though from dry desert tracts they are absent.

This province, favored as it has been in many respects, has been bountifully supplied, though perhaps not more than other colonies, with ants. There are many varieties of these creatures—small as well as large—from the little pismire, as its prototype is called in England, to the formidable insect known in South Australia, as the soldier ant, which is quite an inch and a quarter in length. The jaws of this terror to those who may provoke its hostility are a full quarter of an inch long. The bite of this ant leaves bad consequences behind it in the shape of a sore which is not easy to heal. These ants live for the most part in sandy country. There are two sorts specially noteworthy—the soldier, which is scarlet, and the bulldog, of a deep shining blue. Besides these there are white ants, which are destructive to soft timber, books, and other things which come within their reach; black, blue, and red ants, night ants, large, blind and harmless; and one, seen in the sub-tropical region, which is green. It is a most hideous-looking insect, with a wedge-shaped head which seems to be all teeth. The small ants, when they find their way into houses, as they sometimes do, are great pests. They attack everything—meat, sugar, sweets of all kinds, indeed almost all

* Trans. Roy. Soc. S.A.: A. Zietz, 1887.

that is edible. Kerosene or tar placed in their holes, however, soon gets rid of them. Other ants, which live in gardens and on the plains, must do much good. They devour all sorts of insects, centipedes, scorpions, tarantulas, and spiders of various kinds; and they do not approach dwellings unless a few stray ones are brought there with firewood. They never domicile themselves as some of the smaller varieties do. Nevertheless it is as well to avoid them, because when they do bite, the sensation, though not lasting, is not unlike that of a hot needle stuck into the flesh.

South Australia has many species of spiders, but the branch of entomology which treats of the *Arachnidæ* has not received much attention, and little is known about it. Several of them are to some extent poisonous, and the bite, if not dangerous, is certainly painful, and occasions much constitutional disturbance in some cases. One spider, which builds its nests in low bushes, spins beautiful silk of a yellow color. It is sometimes found stretching for many feet from one bush to another, and is extremely strong and tough. The nests are often as large as a moderately sized egg. They are most common in the North. Another most interesting species excavates a hole in the ground, which it covers with a beautifully fitted lid, and closes it down when it captures anything, so as to prevent the escape of its prey.

The fishes which abound along the shores, from the Great Australian Bight as far, at least, as the Glenelg river, are to a great extent identical with those which are found off the coasts of Victoria and New South Wales, as far north as Sydney. Schnapper *(Pagrus unicolor)*, mullet *(mugil)*, several species; mackerel *(Scomber antarcticus)*, whiting *(Sillago maculata)*, rock cod *(Pseudophycis barbatus)*, leather jacket *(Monocanthus ayrandi)*, flathead *(Platycephalus)*, several species: salmon *(Aripis salar)*, gurnard *(Trigla)*, are common to both Spencer and St. Vincent gulfs, whilst the mulloway *(Sciaena antarctica)* abounds in the Murray near the mouth as far as the water is salt. Bream *(Chrysophrys Australis)* and perch *(Sates colonorum)* are plentiful in the streams which open into Encounter Bay, and also in the Onkaparinga, near its entrance to the sea. The sweep *(Scorpis œquipennis)*, a most delicious fish, is abundant in New South Wales, where, strange to say, it is not thought much of. It is found at Port Elliot, on the south coast, near Pullen's Island, and in the deep water which skirts the rocks at Commodore Point, in Encounter Bay. The sole *(Synaptura niger)* is found at Port Lincoln, at Kangaroo Island, and occasionally in Gulf St. Vincent. It is somewhat scarce, and rarely brought to market in the capital. Crabs *(Neptunus pelagicus)* are plentiful on sandy beaches in shallow water, on sand banks in deeper water, and in

rocky places. They are of a small size, but of excellent flavor. The spiny lobster or crayfish *(Palinurus hugelii)* abounds on the South Australian coast wherever it is rocky. It is abundant at Port Elliot, Encounter Bay, Port MacDonnell, Guichen Bay, Kangaroo Island, &c., &c. The Murray cod *(Oligarus)*, of which there are two species, is found principally in the river from which it takes its name. It occurs, however, in other rivers in the west of New South Wales, and also in a few of the eastern rivers north of Sydney. The *Oligarus Macquariensis*, or true Murray cod, is a valuable fish for the table. It is extremely voracious, and specimens have been known to weigh as much as 120lbs. The second species *(O. Mitchelli)*, called by fishermen the Murray perch, differs from the first in many particulars, but is not much inferior in size. Many other fishes frequent the coast whose names and characteristics have not been recorded. The late Sir William MacLeay published a most valuable "Descriptive Catalogue of Australian Fishes," and the late Count J. de Castelnau, has treated of "Australian Fishes, new or little known," &c., but as yet no census of the fishes peculiar to South Australia has been prepared, so that probably much has yet to be learned respecting them.

Sharks of various species infest the coastline of South Australia in every direction, and are at all times dangerous. One kind, known in New South Wales as the "Grey Nurse" *(Odontapsis Americanus)*, which is frequently seen in the South Australian gulfs, is a formidable monster. It is recorded in "Fish and Fisheries of New South Wales, 1882," that it has been known "to seize hold of the steer oar of a whaleboat when the boat was moving rapidly through the water and shake it with its teeth two or three times, let go its hold, and pursue and seize it again as if it were a living object." Some years ago a party in a boat off the Semaphore struck one, which was lying on the surface of the water, with a boat hook. It attacked the craft and tore away a part of the side, and the occupants were obliged to cant the boat to get into shallow water where the shark could not follow it. More recently a midshipman belonging to H.M.S. *Clio*, the flagship of Commodore Stirling, which was at anchor off Largs Bay, was paddling around the ship in a canoe. One of these sharks rose from underneath, seized the canoe and tore out a portion of the bottom. In the planks of the canoe several of the shark's teeth were left embedded in the wood; they were from 1in. to 1½in. in length.

One specimen of the swordfish *(Xyphias)* was captured at the head of Spencer's Gulf, at Port Augusta, and is now in the Adelaide Museum A *Luth*, or leathery turtle, was taken a few years ago off Torrens Island, in the arm of the sea which extends to Port Adelaide. These were

probably accidental visitors, inasmuch as no similar specimens have been seen since.

The fresh-water fish in the smaller streams are few and of small size. They appear to be little known to science; nevertheless, they are delicious, and not unlike whitebait. In all the deep holes in the inland mountain streams a kind of crayfish is always procurable. In form it much resembles the European lobster, but is small, varying from 3in. to 6in. in length. It is of a dull bluish black when taken out of the water, but turns red on being boiled. It is of delicate flavor, though its edible part is small. There is one lobster—a true lobster—*(Atacopsis serratus)* which is obtainable in the Murrumbidgee and Murray rivers. It averages about a foot in length, and is marked in irregular dark and light patches. When boiled parts of the shell remain cream colored whilst the others turn red. It is in season in the winter time, but is scarce in the Adelaide market.

In South Australia one of the finest kinds of oyster covers extensive beds on some parts of the western coasts of the colony. It is of large size, splendid flavor, and abundant, and is known by the name of the Port Lincoln oyster, though it is found not only at Port Lincoln but in numerous places along the coasts of Banks' Peninsula, and elsewhere in that region. The indiscriminate way in which some years ago these bivalves were dredged up and sent to market necessitated legislation, and as occasion requires the old beds are closed for various periods, so as to prevent the exhaustion, if not the ultimate destruction, of the valuable oyster grounds. Of late oysters have become dear, inasmuch as in the season they are exported to the eastern colonies. New South Wales has extensive beds of rock oysters, which, though delicate and admirable, are not large; but that colony has nothing to represent the unrivalled products of Port Lincoln. Shrimps, or rather prawns, abound along shallow sandy beaches, but they are not very frequently seen in the shops for sale.

CHAPTER IV.

South Australian Plants—The Forest Land Region—The Scrub Land Region—The Grass Land Region, &c.

To speak of the botanical features of South Australia is in reality to speak of the botanical characteristics of western and eastern Australia. The region of South Australia, from its position and its geological conditions, could scarcely be expected to develop flora much different from those which exist on the eastern and western sections of the continent that form her natural boundaries. Thus it is seen that the two genera of the eucalyptus and the acacia preponderate over the whole province, as they do in other portions of the great continent; but of 134 eucalypti which are at present known in Australia, only thirty, and of acaciæ, of which 300 species are recorded, no more than seventy, are found in South Australia.

Apart from other characteristics, the trees of South Australia are not as tall as those which are found on the north-east and west of her territory. The eucalypti do not exceed 100ft. to 120ft. in height, whilst in Western Australia one species attains the height of 400ft., and one specimen in Victoria measured 420ft. in length. This was a fallen tree in the Dandenong Ranges in Victoria. Amongst the eighteen to twenty species of eucalyptus which appear in the extra-tropical part of South Australia, there are only a few kinds which are held in special estimation. They are commonly called the red, white, and blue gum, stringybark, and peppermint. These are used for various purposes, such as building, rough carpentry, wheelwrights' work, and for fuel. The redgum *(Eucalyptus rostrata)* is very hard and solid, weighing about 62lbs. to the cubic foot, and when properly seasoned is impervious to the white ant; it is, moreover, most difficult to work up. The stringybark *(E. obliqua)* has its habitat principally in the hills. It sheds its bark in long fibrous strings, which loosen and droop down as they become detached by the newly-formed bark underneath. This process gives to the trunks of the trees a ragged untidy appearance. The stringybark grows so straight that the young trees are much used for scaffold poles, spars, &c., in which length, strength, toughness, and straightness are required. The wood of these trees makes excellent palings and shingles for roofing, because it splits evenly and readily. It is also used largely for fencing rails and sometimes for posts; but it soon perishes in the ground, and the white ant destroys it rapidly. As fuel it is not good. When dry it burns away fiercely; when green or damp it can with difficulty be got

to burn at all, unless mixed with other more combustible wood. The bluegum *(E. dumosa)* is valuable for all sorts of work, and for fuel as well. The whitegum *(E. viminalis)* is generally inferior in durability: it does not resist white ants, and when green or damp it is worse even than stringybark as fuel. The peppermint *(E. odorata)* is a hard wood, useful for ordinary purposes, and very serviceable as fuel.

The redgum is widely distributed. It is never far distant from water, and its stately branches are almost invariably noticeable on the margins of creeks and watercourses in the north.

All *Eucalypti*, indeed most Australian trees, are remarkable for their naked appearance. The boughs are always distinctly traceable through the foliage, which is smooth and shiny, in their grey outlines, from which at a distance the leaves scarcely seem to depend. The trees for their size throw little shade, and in some varieties thick branches often drop off suddenly on a perfectly calm hot day, to the certain destruction of anything that may happen to be beneath. These trees give a special monotony to the scenery of South Australia.

The wood of the acacia is useful only for cabinet work, but the blackwood *(Acacia melanoxylon)* has better qualities for purposes of that nature. This tree, however, is common in the south-east, whilst it is rare near Adelaide. It is more common still on the eastern side of the border. Another species of acacia, the wattle of the colonists *(A. pycnantha)*, at one time neglected, but now largely cultivated, is valuable for the gum which freely exudes from it and for its bark. The gum is little, if at all, inferior to gum arabic, and the bark, bought in England as *Mimosa* bark, is one of the best of the kinds used for tanning purposes. There are other kinds of acacia which are also valuable for tanning, but none are equal to the wattle.

The sheaoak *(Casuarina stricta)* is remarkable in appearance. Its fronds do not shape as ordinary leaves: they appear as continuations of the branches; they never reach any great height, and are almost funereal in aspect. The wind rushing or sighing through them causes a mournful whistling or wailing sound, according to the force of the breeze. All kinds of cattle eat their fronds greedily. The wood is tough and splits tolerably evenly. It makes excellent spokes for wheels, handles for hammers, &c., and is used also for turnery work and in cabinet-making. As fuel it is excellent.

The tea trees *(Melaleuca* and *Leptospermum)* mostly inhabit low damp situations, and are to some extent valuable because of the durable nature of their wood when used underground, or perhaps in water. It is close-grained and hard, and when dry, heavy. It is generally sound at the heart. The wood of the native pines of this province *(Frenela robusta*

and *F. rhomboidea)* are not durable, and little used except for fences or for fuel. The *Banksia marginata*, or honeysuckle, is occasionally used for cabinet work, and the *Myoporum acuminatum*, although soft, is tough, and forms excellent knees for boats.

The late Dr. Schomburgk, Director of the Botanic Garden, Adelaide, from whose writings the foregoing account has been mainly derived, remarks upon the absence of native edible fruits, "of which there are none deserving the name, except a few berry-bearing shrubs belonging to the orders *Epacridæ* and *Santalaceæ*, *Astroloma* and *Leucopogon*, the principal species of which, the native currant of the colonists (*Astroloma humifusum*) and the so-called native peach (*Fusanus acuminatus*) producing a globular fruit of the size of a small peach, with a succulent pericarp and a hard, bony, much pitted endocarp (the quondong), are all South Australia can boast of. There is also a deficiency in eatable root-bearing plants." There is one of which little notice has been taken—the muntree. It grows along the ground, and produces a berry of a size somewhat smaller than that of the ordinary Barcelona nut. The smell and taste are strong, and like that of an apple. It may be found on the banks of the Inman and Hindmarsh rivers, on Yorke's Peninsula, and in many other spots where sandy soil and moisture exist. A shoot withers rapidly when separated from the parent plant.

One peculiarity of the eucalypti has not been noticed, and that is their extraordinary vitality. As long as a strip of bark is continuous from the ground up to the branches, the tree which keeps it lives. Thus trees many feet in diameter at and above the bole, hollowed out by the ravages of insects or by fire, leaving cavities large enough to shelter several grown persons, live and put forth their leaves as if nothing had ever occurred to interfere with their growth. Dr. Schomburgk, however, points out that when eucalypti trees die they begin to die from the topmost branches. The leaves fall off, and nothing but dry twigs and sticks are left until the end comes. The gum trees of all kinds are subject not only to the attacks of insects which destroy them, but to the visitation of a vegetable parasite called the mistletoe. It attaches itself to the branches and hangs down in long pendulous vitiform bunches, and is not unlike the mistletoe of the oak. When it attacks a tree the life of that tree is only a question of time.

The sandalwood tree, which grows in abundance on Yorke's Peninsula, is short in stature, but produces solid and strong wood. When recently cut down it has an agreeable odour, which lasts for a long while, but becoming more and more faint as the trunk dries. It is useful for many purposes. It also does duty as firewood. Those who have read in

Eastern tales about chambers being scented with burning sandalwood, and imagine that a perfume of a pleasant nature must be the result, would be completely disillusioned by the combustion of our sandalwood. This wood is known even in China as a deadly foe to mosquitoes. This is not surprising, for anyone who has had the good or ill fortune to camp by a sandalwood fire in the bush will give his clear testimony to the fact that the smell of the burning wood is bad. It is not too much to say that it verges on the insufferable. Some specimens of the timber have been sent to England, and some forwarded to the Paris Exhibition in 1871, but they have not attracted attention.

After noticing the general features of the flora of South Australia, the author above referred to states that "notwithstanding the little apparent difference in the formation of its surface, soil, and climate, the flora of South Australia introduces itself to the observer in its geographical extension by special and peculiar forms of plants in regions. These are the forest land, scrub land, grass land, and the intra-tropical regions."

The region of the forest land in South Australia occupies most of the mountain districts, and extends along the base of the mountain chains. The forests have not the fulness and lofty growth of those of other countries. The underwood is of medium size, more open and less difficult to penetrate. The forests are of less extent, and are intercepted by tracts of grass land. The eucalypts are the most predominant forest trees; the stringybark forming often whole forests in some mountainous districts but is seldom seen in the plains.

The trees of the forests do not appear crowded, and seldom do the branches of a tree reach those of a neighboring one. The declivities of the mountain ranges are for the most part similarly timbered, the trees sometimes extending to the summits; often only one-half or two-thirds of the remaining part being grassed, with here and there copses of low shrubs, and stunted and much ramified trees. Often the whole declivities are grassed without even a shrub or tree.

"Another feature of the tableland in the hill districts is the appearance of occasional hills clothed only with a scanty covering of tussocky grasses, amongst fragments of ironstone quartz and sand, destitute of all other vegetation, except small scattered trees of the *Casuarina stricta*, *C. glauca*, and the peppermint (*Eucalyptus odorata*).

"The level tableland is generally covered with grass, but is deficient in shrubs. Here scattered are to be seen the most stately and majestic specimens of eucalypts. Such tablelands have a park-like appearance, the trees standing seemingly at measured distances, single or in small clumps, as if planted by a landscape gardener. The soil of these table-

lands is generally speaking very rich, and produces abundant crops of cereals. The underwood of the forests is most represented by the following genera—*Correa, Alyxia, Prostranthera, Grevillea, Hakea, Isopogon, Exocarpus, Acacia, Banksia, Cassia, Calythrix, Pomaderris, Leucopogon, Leptospermum, Daviesia, Dillwynia, Eutaxia, Platylobium, Puitenaea,* and shrubby eucalypts.

"The beautiful genus *Epacris*, which is only represented in South Australia by one species *(E. impressa)*, frequently covers whole mountain ridges and declivities: when in bloom the different shades of color of its its flowers produce an effect not readily described.

"A most prominent and striking effect of the mountain forest region is produced by the grass trees *Xanthorrhoea quadrangulatis* and *X. semiplana*. They mostly appear on the ridges and declivities of rocky and stony hills almost devoid of any other vegetation, and are found on some wooded lands, but never on the plains. The first-named grows from 10ft. to 12ft. in height, often with a trunk from 1ft. to 18in. in diameter, and the flower stalk 6ft. to 10ft. high. . . . . . This species appears only in hilly districts, on rocky declivities; it drives its straggling roots into the crevices of the rocks several feet down into the accumulated vegetable soil. These grass trees are of slow growth—the largest specimens must be several hundred years old. The second species, *X. semiplana*, is often found at the base of the hills in sandy soil. It forms its stem underground, extending often 2ft. or 3ft. before the roots appear. The leaves lie close to the ground. Both species exude a resin, which contains nitro-picric acid, from which a valuable dye can be made." These grass trees exist in thousands on the sandy flats in the Ninety-Mile Desert, which lies between the Murray River and the Victorian border. The roots of these plants are edible; the gum, when it could be procured, was used by the natives to fix stone points on to the wooden shafts of their spears and to fasten axe heads fashioned of stone to their helves, as other paleolithic savages did in earlier geological epochs. The *X. quadrangulatis* not long ago existed in tolerably considerable numbers in the Waterfall Gully, a favorite resort of holiday makers, about six miles east of Adelaide, and in the gully ending with the Morialta waterfalls. But holiday-making at most times means spoliation of some sort, and, of course, when wild flowers, ferns, &c., are trophies of holiday expeditions, grass trees could not be expected to escape. Some lives have been lost in consequence of over-confident climbers ascending the steep rocks in which they grow, and in inaccessible places they remain in their solitary greatness. They are mostly known to old colonists as "black boys," and at a distance the strange shapes these trees assume, is suggestive of the colloquial name.

The gullies which intervene between the hills are filled with shrubs and ferns, and some of the most beautiful plants in the province are found there. Handsome ferns, according to Dr. Schomburgk, flourished there in great profusion, and many are still to be seen, such as the *Todea Africana*, whose stems are sometimes over 18in. in diameter. There are others also which need not be enumerated, some of which thrive in the crevices of rocks and some which border the edges of brooks and rivulets, which in the gullies are almost always flowing in the hottest weather.

Terrestrial orchids inhabit the bases and slopes of the hills in places where they are not overshadowed by the undergrowth. There are about twenty genera in South Australia.

The regions of the scrub land appear over the whole area of the province; they stretch to greater or less extent in different districts, and are estimated to cover about one-eighth of the whole area of the colony. They are most extensive in the north and east, and in the south-east bordering on the Murray. They include wearying, desolate, and arid plains, the soil being of the poorest description, unfit for cultivation, and changing from loamy clay to pure sand; the surface is covered with fragments of silicious or ferruginous sand and iron stone. The vegetation is stunted. The scrub itself is nearly destitute of grasses and other herbage. No indication of water is seen in such places. There are but few genera of grasses, and they grow only in tufts considerably apart from each other. The absence of other herbage is as great during the summer, but this great deficiency is compensated by a large variety of genera and species of shrubs. . . . . The monotonous and dismal look of an extensive tract of scrub is depressing when viewed from an eminence. The uniformity in the height of the vegetation, and the dull glaucous color of the foliage, look in the distance like a rolling sea reaching the horizon. Such at least is the impression which is usually produced by the first glimpse of the Murray scrub, which extends for hundreds of miles. All the scrub in the different districts produces the same impression, but the plants inhabiting these tracts are not of the same genera and species, because the locality and soil affect the character of the flora. . . . . Shrubs of one kind or other are found in flower throughout the year. Most kinds bloom in September and October; the rainy season therefore alters the outward appearance of the scrub only to a small extent: but it calls into life the terrestrial orchids, of which a good many kinds inhabit it. Their duration is short, and they disappear as rapidly as they spring up.

A most valuable plant appears in abundance in the northern districts. It is known as the saltbush (*Atriplex Nummularia*), on which sheep subsist and thrive during the summer and in times of drought. If all

other vegetation is suffering from drought, the saltbush alone withstands the heat of the sun, maintains its freshness, and saves thousands of sheep from starvation.

The grass land region forms the principal part of the whole area of South Australia. It consists of vast undulating plains, stretching from the coast to the north and east. But along the coast and for hundreds of miles inland the grass plains have for the most part disappeared, and now form agricultural districts which produce the finest cereals known.

The great plains of the interior, especially towards the north, so extensive as to be lost in the horizon, like deserts, are emphatically monotonous and desolate. Only here and there are found fertile spots of grass land, but not of large extent. They alternate with bare sandstone ridges or rolling sandhills, interspersed with stony and waterless flats. Their surface is often saline, covered with sharp angular or weather-worn fragments of various sizes, of ironstone quartz, reddish sandstone, and conglomerate, supporting only a scanty herbage of perennial grasses, that grow in tufts and tinge the sandy surface. Groups of stunted shrubs and small ramified trees, mostly of limited extent, rise from the plains like islands. They consist of varieties of the sheaoak *(Casuarina)*, eucalyptus, and wattle *(Acacia pycnantha)*. The plains near the coast are of a different character. The soil is mostly fertile, extending often down to the sea, and constituting a great portion of the arable land of the colony.

The fertile earth covering these plains gives rise to an essential alteration in their vegetation. Nourishing grasses of various kinds make their appearance. Shrubs of small stature, with sheaoaks, wattles, pines, &c., sometimes single, but occasionally forming groves without underwood, like oases in the desert, are scattered about. The banks of the rivers and creeks, which mostly cease running in the summer, are lined with tall gum trees of immense size, and shrubs which spread out more or less into the plains according to the nature of the soil. . . . .

In the month of May the rainy season generally commences. The rain has a wondrous effect upon the herbage of the plains. A few heavy showers change the patches of dried-up grasses and herbage into a beautiful green sward. The rapidity with which the grasses, especially the annuals, spring up, is such that in a few days the plains are covered with luxuriant verdure which ordinarily only northern countries produce. For the few months that the wet season or winter lasts, every week adds new colors to the vegetation of the plains. By the middle of November the number of flowering plants lessens rapidly. The annual grasses and other herbaceous plants begin to dry up, droop, and disappear. In January the plains present a dried-up and withered appearance. The seeds of

the annual plants have been scattered; perennial herbage has returned to its dormant state until the advent of the next rainy season. . . . . There is another kind of grass land to be met with here and there in large parts, called "Bay of Biscay land." Such places have a peculiar undulating surface. The soil is considered very good. It is of a chocolate color, and produces fine wheat crops, but it takes several years' ploughing to render the surface level. The flora of the Bay of Biscay land has its peculiarities. Gum trees *(Eucalyptus)* shun such tracts, but they are rich in *Compositæ* and grasses.

CHAPTER V.

CLIMATE—AREA — PRODUCTIVENESS OF THE PROVINCE — VARYING RAINFALL — METEOROLOGICAL RECORDS — THE GOVERNMENT ASTRONOMER'S VIEWS — FOREIGN PLANTS AND THEIR PROGRESS—THE HILLS AND PLAINS—THE SEASONS—DELIGHTFUL CLIMATE—SIR G. KINGSTON'S OBSERVATIONS—COURSE OF WINDS—THE INFLUENCE OF THE MONSOONS—HOT WINDS—METEOROLOGICAL TABLES, &C.

THE climate of South Australia, although occasionally somewhat trying in the summer months, is unquestionably one of the most agreeable and most healthy in the world. It has been compared with that of the south of Spain. Its skies have been justly described as surpassing those of Italy. The purity and dryness of its atmosphere are quite equal to similar climatic characteristics which prevail in the best portions of Algeria.* In fertility of soil it is not inferior to that of the most favored districts in those sunny lands. The enormous territory which is embraced within the limits of South Australia proper, having an area of about 380,070 square miles, or 243,244,800 acres, naturally includes considerable climatic differences. The climate in the hills and in the high lands is temperate and genial, and not marked by an excess of cold during the winter months. On the plains the summer weather is most felt, for, as the winter and spring rains cease, they become dry and hot and unfavorable to the growth of many plants which belong to cooler countries. In the hills almost all the fruits and vegetables which grow in Europe and in the more temperate regions of Asia, as well as many that are indigenous to Africa and America, thrive splendidly. The productiveness of the colony depends to a very great extent upon the rainfall, and that varies remarkably, not only in different localities, but in different seasons. Thus the rainfall at Mount Lofty, in 1889, amounted to 67·010 inches; in 1859 it was 32·000. At Parallana, in the far north, in 1888, it was 1·710 inches, and in 1885 it had been 20·405. In some parts of the north, such as Lake Frome, only 5 inches were recorded. The average rainfall in the whole of the agricultural districts of South Australia, from Melrose to Cape Northumberland, in 1890* was 26·646 inches; the mean for previous years being 21·476. The highest total was in 1889, when 30·874 inches were recorded at the Adelaide Observatory; and the lowest in 1876, when no more than 13·434 inches were noted at the same place. It is somewhat strange that the heaviest rainfall known in the colony should not have been followed by

* Parliamentary Paper 31 of 1891, Rainfall in South Australia: C. Todd, Government Astronomer.

something approaching to a corresponding increase in the harvest; yet, in 1863, with a rainfall in Adelaide of less than 24 inches, the yield was nearly double what was secured in 1889, when the rainfall was nearly 31 inches. This noticeable discrepancy, however, may be ascribed to causes not altogether dependent on the actual quantity of rain that descends. The time of the year at which the rains set in, their duration, and then again the temperature which immediately follows upon the rains when they continue late and come down to the verge of summer, and the early visitation of north winds, which in the summer are hot, all have their share in influencing the quantity of the yield. Other circumstances, not meteorological, have also their effect upon the harvest.

The observations of the rainfall which occurs in the various parts of the colony are recorded at 368 stations. At several of these the daily range of the barometer and thermometer are noted, with all the particulars which accurately describe the meteorological conditions of the place. These are forwarded to the central station, where, under the direction of C. Todd, Esq., Postmaster-General and Government Astronomer, they are collated, tabulated, and prepared for publication. By means of the telegraph, which extends from Adelaide to the Indian Ocean on the north, to Melbourne and Sydney on the east, almost to the extreme north of Queensland on the north-east, and from Adelaide to North-West Cape in Western Australia, the Government Astronomer is able to publish weather forecasts, which, being generally reliable, are alike interesting and useful to the public, and are eagerly looked for in the columns of the daily journals.

From this it will be seen that this colony (as well as the other colonies whose meteorological records are collected and made up on the same system) is in a position to furnish daily accounts of meteorological phenomena which occur over most of the continent, that can be regarded as authentic. The record of the rainfall dates back as far as 1839, when it was commenced by the late Sir George Kingston, formerly Speaker of the House of Assembly, and who kept it up till within a very short period of his death in 1880. The record at the Observatory was commenced in 1856, since when its operations have been gradually extended all over the province, so that its meteorological arrangements are as complete as it has been possible to make them.

The Postmaster-General and Astronomer to the colony published in 1876* a paper which gave interesting particulars of the climatic peculiarities of South Australia, as well as a detailed account of the Observatory and its appliances. Since the publication of that memoir

* Observatory and Meteorology of South Australia: C. Todd, C.M.G., F.R.S., &c., 1876.

the climate of the colony has not sensibly changed. There have been irregularities in the seasons, or rather irregularities in the special phenomena of those seasons, especially of late years, which should, if duly weighed by those who are interested in the culture of the land, whether as fruit growers, vignerons, market gardeners, or producers of grain, largely influence the horticulture and agriculture of the future.

The indigenous plants of the province were not capable of maintaining a large population. The food of the aborigines indeed consisted almost entirely of animals, birds, reptiles, fishes, and even insects. The soil and climate, however, which produced so little for the food of man, before the coming of the white settlers, amply rewarded the adventurers who migrated to the province when they planted the seeds of their European homes in South Australian soil. Everything, or almost everything, throve at first. As experience of the country extended, and the different plants became acclimatised, they increased in strength and productiveness. The late Dr. Schomburgk stated, and it has been proved, that the South Australian cereals are the finest that are grown in the world, and, with the exception of those that are intra-tropical, all fruits from other parts of the world come to a perfection in size and flavor in the different districts of the province hardly known in other countries. Most fruits, vegetables, and useful plants are found to improve by the change, as the climatic conditions to a great extent modify as well as develop them. The finest grapes are grown upon the plains; they ripen in perfection and in profusion. At the present time South Australian wine has obtained no inconsiderable reputation in the markets of Europe. On the plains apples, pears, loquats, plums, walnuts, and chestnuts, as also apricots, peaches, nectarines, oranges, citrons, lemons and shaddocks, cherries, grapes, figs, almonds, mulberries, olives, &c., thrive splendidly, and many of them in the gullies in the hills. In these gullies vegetables of the finest quality and all culinary herbs grow in all seasons. They flourish also on the plains during the rainy season. Cauliflowers of large size, cabbages, turnips, asparagus, artichokes, leeks, onions, beets, carrots, potatoes, endive, lettuce, celery, &c., as well as cucumbers, sweet and water melons, pumpkins, tomatoes, and other fruits and vegetables attain a size and flavor which are not common in Europe.

In the memoir on the climate which has been referred to, Mr. Todd states that "the observations at the Observatory satisfactorily represent the climate of the plains for some distance north and south of Adelaide, but in the Mount Lofty ranges, close by, the citizens can in an hour or two find a much lower temperature, and twenty minutes by railway will carry them to the invigorating breezes of the gulf; and, except when kept back by strong easterly and northerly winds, the sea

breeze sets in soon after 10 a.m. and sweeps across the plains, tempering the heat during what would otherwise be the hottest hours of the day.

"The hottest months in the year are December, January, and February, when the temperature on the plains frequently exceeds 100° in the shade. November and March are also hot; but the nights, especially in the former month, are cooler, and the heat is seldom of long duration, rarely reaching 100° in the shade, and, coming in suddenly with a strong hot wind, is followed quickly by a change to cool, or even cold, weather. A few hot days occasionally occur in October; but, even in the hottest months, especially in December, the weather is often broken by cloudy, cold intervals, with strong south-west winds, veering gradually to south and south-east. This state of things will continue for several days, during which the wind from the south-east will usually freshen towards sunset, a bank of cloud forming over the Mount Lofty ranges, with cold nights, the temperature falling rapidly after sunset. The duration of these south-easterly winds appears to depend upon the weather on the eastern coast; and the presence of the bank of cloud on the ranges, and the persistence and force of the wind, often indicate gales and rain on the coasts of New South Wales and Queensland, although the weather here may be fine and clear overhead. As the easterly wind moderates it gradually hauls to the north, and alternate land (easterly) and sea (south-westerly) breezes set in, with fine weather, getting warmer and warmer, till another spell of extreme heat is experienced. The heat is sometimes followed by rain, especially in the earlier part of the season, setting in with the surface wind light at north-east, but the upper current north-west. This is usually presaged by aggregations of cirro-cumuli, which close up and form a bank with a hard sharply-defined outline, gradually spreading over the sky, the clouds at the same time increasing in density as they change their character, with scud forming beneath. The rain increases as the wind veers to the north-west, and often extends over a large area to the north, and is sometimes accompanied with heavy thunder and lightning, usually terminating with a gale from the south-west. The same thing occurs in the winter; but the wind at that season hangs longer about the west, often backing to the north-west, with heavy rain and wind. These are usually our heaviest and most widely diffused falls, the rains from the south-west seldom extending far inland.

"The summer may be regarded as extending from October to March. After that month the temperature falls rapidly, very rarely reaching 90° in the shade. . . . The weather during April and a great part of May is simply perfection, and the same applies to most of the winter and till the end of October. Although corresponding to the autumn or

early winter of Europe it is virtually spring, when vegetation, refreshed by the first rains after the drought of summer, bursts into fresh life, and the whole surface of the land is clad with verdure." Heavy rains frequently fall in May, and the greatest downfalls usually occur in that month. The coldest months are June, July, and August, but the mean temperature in those months has not fallen below 51·5°. Although the temperature is not very low, the cold is sometimes much felt in the winter months, because of the contrast it emphasises between the summer weather and the genial temperature which prevails in other portions of the year. Frosts occasionally occur on the plains, and frequently in the hills. Ice, perhaps a quarter of an inch thick, is occasionally noticeable in shallow surface pools, but this rarely if ever survives an hour's sunshine. Snow has sometimes fallen at Mount Lofty and on other high summits in the ranges, and at other times a few miles north of Kooringa, which is 1,560ft. above the sea level. Snow is, however, quite phenomenal in South Australia, and the drift does not remain on the ground for more than an hour or two, whenever it does occur.

* In writing on the subject of the course of the seasons or "weather forecasts," Sir George Kingston gave the following as the results of his observations extending over forty years:—"The heaviest rains throughout the year may be expected with a wind at about north-east, the rain then commencing to fall gently and the wind light—both gradually increasing as the latter veers round to the north, and thence to the north-west, when the violence of both rain and wind has much increased. After this the wind may be expected to draw round to the west, with still increasing violence, till it has got to the south of west, when the rain generally ceases—or at least rarely falls except in heavy squalls and showers—and the weather clears up. The time occupied by a continuous fall of rain, as thus described, rarely amounts to twelve hours. The wind will, however, frequently hang at about west, with a few points of variation to the south and north, for some days—during which period rain occurs in showers if to the south, and more steadily in proportion to the northing of the wind. The heaviest rains—assuming a tropical character—may be expected after a hot north-east wind, drawing round to the north-west, at which point an inch of rain and upwards has often fallen within the hour, accompanied with heavy thunder and lightning; or, as in October, 1854, the rain is represented by tremendous hailstorms—the hail assuming the form of flat pieces of ice.

* Parliamentary Paper, House of Assembly, No. 74 of 1879. Sir G. S. Kingston's Analysis of Rain Register, 1839 to 1879.

"As regards the use of the barometer, in forming a judgment on the weather to be expected I have to observe that the barometer invariably begins to fall with a north-east wind, continuing to fall as the wind increases in violence and draws round by the north, north-west, and westerly, at or about which point it reaches it lowest figure. The barometer generally begins to rise with the least southing in the wind. Now, although a low barometer thus agrees with the heaviest fall of rain, it is impossible to draw certain conclusions from it as to probability of rain or otherwise—unless, indeed, when the wind is violent, as then, even with every appearance of heavy cloudy weather, rain rarely occurs. Calm, murky weather, accompanied by a low state of the barometer, is the most favorable indication for rain. I have frequently seen the barometer at its lowest point (as observed by me), 29·3—blowing hard, and accompanied by cloudy weather—when no rain has fallen: on the other hand, I have known some of the steadiest and most copious rains to occur with the barometer at 30·2 and falling, the wind light or nearly calm.

"I may add, that generally during fine weather a land and sea breeze alternates during the twenty-four hours. After sunset the wind generally blows from about south-east to east, dying away about daylight, and a light south-west wind springs up about 9 a.m.—but, failing to do so, the land wind towards morning draws round from east to north-east by north to north-west, and west towards the afternoon; and should it hang to the north of east, with a falling barometer, it is a certain precursor of a hot wind.

"It may not be uninteresting to add here that, when Sydney was visited by tremendous storms and floods from the 19th to the end of July, 1860, the weather here was then unusually fine for the time of year; the barometer was, during all that time, above 30in. and very steady—oscillating slightly each day, its whole range not exceeding 0·2; the wind was very light, from south-east to north-east and north-west. I did not record a drop of rain all that time—an unprecedented event at that period of the year."

"The winds," according to Mr. Todd, "during the summer tend generally on all sides to the heated interior, which may be roughly described as a vast plain broken by a few ranges, none of which are of any great size or magnitude; on the south coast the wind being south-east and south varied by occasional south-west gales following a hot wind from the north-east and north, whilst during the winter north-east and northerly winds predominate. On the east coast it is south-east, east, and north-east, whilst further north and round the north coast, the north-west monsoon for some months before and after the summer solstice presses down south with varying force, often making itself felt as far south as the Macdonnell ranges on the southern edge of

the tropics in the centre of the continent. North of the Macdonnell ranges the winds during the summer season are variable, south-east and north-west winds alternating with calms, and heavy electrical storms with rain prevail with increasing intensity northwards to the coast. South of the Macdonnell ranges south-east winds prevail during the greater part of the year, but in the summer they are often influenced by the north-west tropical current, and then veering to the north-east and north will sweep over South Australia as a hot wind, the birthplace of which seems to be, speaking approximately, somewhere about latitude 26°. Our experience of the climate of the interior of Australia is as yet but limited, but the stations on the great overland telegraph now furnish accurate daily reports of the weather, direction of upper currents, and rainfall. These reports show that the prevailing wind, except during the middle of the summer, is south-east."

In connection with Sir George Kingston's "weather forecasts" the following observations from Mr. Todd may be read with interest:—"I have long been of opinion that the southerly dip of the monsoon largely influences the climate of South Australia proper as well as that of Victoria. In seasons of drought, or when the summer in the interior is dry, the north-west monsoon rains thin off, and rarely reach the centre in occasional storms. But when the monsoon is strong and blows well home, the tropical rains and thunder storms will stretch right across the continent well into the northern country of South Australia to within about two or three hundred miles of Adelaide, and occasionally these tropical rains will reach the south coast. A wet season in the interior will probably coincide with a hot summer in South Australia and Victoria; whilst a cool summer, when strong polar currents keep the temperature down and the south-east winds are powerful, will denote or coincide with a dry summer in the interior and a weak north-west monsoon. The winter rains of the south, it may be remarked, thin off at about three or four degrees north of Adelaide, rarely penetrating to latitude 28°, and summer rains are not to be depended upon far south of the tropics. Between those parallels is a wide belt of five or six degrees having an uncertain rainfall, subject to droughts, very seldom getting rain during the winter, but mostly depending on summer thunder-storms, the frequency and intensity of which, it is not improbable, may be found closely to coincide with the magnetic cycle of eleven and a quarter years, which is believed to determine the frequency of auroræ, magnetic storms, and solar spots. This of course is conjectural, and is not to be accepted till proved by increased experience."

From the foregoing a tolerably accurate conception of the South Australian climate may be formed. There is one thing, however, which

deserves some notice here. In many published articles in newspapers and magazines the hot winds of Australia, and specially of South Australia, have been mentioned in highly-colored terms. They have been described as terrific, and have been dwelt upon as though the climate of this province was somewhat worse than tropical. It is quite true that hot winds are not pleasant, in fact they are enervating, and whilst they last are exceedingly exhausting to persons who are in a feeble state of body; but they seldom last for more than a very few days, and when the westerly breezes which succeed them set in, sometimes suddenly, all the bodily *malaise* which they may have caused quickly disappears. They have, however, a most beneficial effect in purifying the atmosphere. They destroy noxious germs which may float about in the air, and otherwise do an immense amount of good. At the same time their effect upon tender plants is severe, and all kinds of flowers and shrubs which are not hardy or tolerably well protected from them droop and shrink, and are slow to recover their strength until a much cooler temperature prevails.

Even with the drawback of occasional hot winds, there is seldom such severe heat in the summer as to prevent persons from following their ordinary occupations out of doors. There are only forty-five days in the year, taking the average of 34 years 1857-90, on which the temperature rises above 90°. The Government Astronomer has noted this fact, and states that "our climate, beautiful as it really is, affording as it does a greater number of pleasant days on which outdoor pursuits can be carried on with buoyancy of spirits, one must confess is a wee bit dry, a fact which vegetation on the plains in our summer season sufficiently attests. The clearness or transparency of our atmosphere is something wonderful, and owing to its dryness, except on hot-wind days, is seldom oppressive unless one is lazy. Cricket matches are played with the usual enthusiasm before crowds of spectators with the thermometer ranging between 90° and 100° in the shade, and the writer has ridden fifty miles in the day with the temperature as high as 110° without much inconvenience or distress; the secret of which is that these high temperatures are always accompanied by such an extreme dryness of the air that perspiration affords instantaneous relief. When a fierce hot wind is blowing, and the thermometer stands at perhaps something over 100°, the wet bulb thermometer will show 65°, and it is this which enables persons to bear the heat of summer and carry on their usual putsuits with less inconvenience and discomfort than is felt in damp climates, though the temperature may be 15° or 20° lower, but nearly saturated with aqueous vapors, as at Port Darwin, where, during the rainy season of the north-west monsoon, the thermometer may stand at only 88°, whilst the wet bulb indicates 86°. Such an atmosphere, we need hardly say, is far more enervating than the hot and dry air of the Adelaide Plains."

One peculiarity of the Australian climate is the occurrence of drought. Droughts are either general—that is to say, they affect the whole of the Australian continent in a greater or less degree—or they are partial, that is confined within limited areas. South Australia is probably more subject to visitations of this kind than any other portion of Australia, owing to some extent to the absence of high mountain ranges in the interior. The causes of these droughts have been very carefully investigated by the official heads of the meteorological departments in the principal colonies, and as far as their observations have extended they are generally in accord upon the subject. The following paper prepared by Mr. Todd will be found most interesting. It enters somewhat fully into the subject and will repay perusal:—

"Australia, lying between the parallels of 11° and 39° south, has a tropical and sub-tropical climate, with summer monsoon rains on the north coast, extending for some distance inland, and winter rains on the south coast. The greater part—all the interior—is within the anti-cyclonic region of high pressure and the dry south-east trades. It is, therefore, a land subject to drought. Sometimes, as during the present year (1888), the drought embraces the whole of the continent, in other years it is more or less local, whilst some regions suffer from almost perpetual drought. The driest portion is a belt of country reaching from a little north of the Great Bight, or from about latitude 30° to the north-west coast, which throughout the year is swept by the south-east trades. The bounding limits on either side are not well defined, but they extend from well to the west of the 130th meridian to the east of Lake Eyre. The average rainfall in the immediate neighborhood of Lake Eyre is a little over 5 inches, and even this low average is only reached by the help of occasional heavy storms. Thus at the Peake on the west, and Cowarie on the east side of the lake, the average is a little over 5 inches, and at Charlotte Waters to the north (26° S.) 6·052 inches. The rainfall at these places in individual years was as follows:—

Year.	Peake.	Cowarie.	Charlotte Waters.	Year.	Peake.	Cowarie.	Charlotte Waters.
	Inches.	Inches.	Inches.		Inches.	Inches.	Inches.
1874	4·452	—	4·982	1882	6·420	3·120	5·890
1875	5·840	—	3·615	1883	2·170	1·050	1·365
1876	1·690	—	1·710	1884	3·315	3·600	2·965
1877	7·335	—	11·775	1885	6·935	11·535	8·405
1878	12·620	—	11·245	1886	7·440	8·515	8·100
1879	6·340	—	10·610	1887	6·765	8·220	8·350
1880	3·630	—	5·515	1888 up to December 27*	2·200	0·200	5·920
1881	2·475	—	2·495				

* Or, for the year—Peake, 3·280; Cowarie, 0·650; Charlotte Waters, 7·080.

At Charlotte Waters (latitude 26°) the driest period since our records commenced in 1874 was from the end of February, 1875, to the end of December, 1876—a period of twenty-two months—during which only 1·910 inches were recorded. Of this 0·73 inch fell in May, 1876, and 0·819 inch in the last three months of that year, leaving only 0·470 inch to be accounted for during the remaining eighteen months; whilst this year (1888), up to December 27th, at Cowarie only 0·200 inch has fallen. These figures will show the severe droughts to which this part of the country is exposed; yet it is occupied by settlers determined to conquer all difficulties.

"Our records of rainfall in the interior extend over too short a space to afford any clue as to periodicity. The foregoing table, however, as far as it goes, seems to indicate wet periods extending over three consecutive years, about nine years apart; but at Alice Springs, where the rainfall is almost entirely dependent on the southerly reach of the monsoons—the winter rains rarely penetrating so far north—no such period is indicated. The mean rainfall there is 11·411 inches; the greatest fall in any year since 1874 was 27·210 inches in 1879, and the least 5·390 inches in 1884. The proximate cause of this extreme aridity of climate is not far to seek. During the winter months the south-east trades extend in the interior, from about latitude 27° to beyond the north coast, as a dry wind, precipitating no rain. The barometer is high, and the nights are cold, radiation, owing to the extreme dryness of the air and absence of cloud, being unimpeded and very rapid. Occasionally the areas of cyclonic depression, which pass along our southern coast in regular succession, extend their influence well into the interior, and then the south-east wind dies away and gives place to a northerly wind on the advancing or north-eastern quadrant of the disturbance. When this happens we may generally expect a good or general rain over the northern portions of the colony, in some cases, but very rarely, even reaching up to the tropics. The majority of these storm areas, however, as they pass the meridian of Adelaide, have their centre well to the south of Kangaroo Island, in which case the rain is mainly confined to the southern extremity of the Flinders Range, the Mount Lofty Ranges, and the southern or coastal districts of the colony. These cyclones evidently skirt the southern margin of the anticyclonic region lying to the north, and have a progressive march to the east. We have traced some from the Mauritius to New Zealand. Their approach is heralded on the west coast by northerly winds and falling barometers at Perth and Cape Leuwin. On the following day the winds in South Australia veer to the north-east, the barometer begins to fall, the temperature rises, and light cirri appear as the vanguard of the approaching disturbance. The low pressure

frequently shoots up into the Great Bight, the depression assuming what is termed a V shape, wedged in between two areas of higher pressure. From this point it follows the trend of the coastline, but its onward progress depends on the high-pressure systems to the north and over south-eastern Australia. If the barometer there is high and the pressure is maintained, the storm centre is driven off to the south, and barely affects our weather in South Australia, and we may have but little rain except on the coast and ranges; but if the pressure gives way the storm centre will keep a more easterly course, and the rain will be more or less general over the colony. Victoria, south of the dividing range, and Tasmania, are, in most cases, well within the influence of these disturbances, and generally, therefore, get rain, with strong westerly gales through Bass's Straits. Having reached Tasmania, the centre will pass over to New Zealand in from twenty-four to thirty hours, on a south-east course. Sometimes these storm areas come up from the south-west and the first intimation we have of their approach is a falling barometer in Tasmania, over which the depression passes, occasionally extending some distance up the east coast of Australia before recurving to the south-east, *en route* to New Zealand. These storms bring strong south-west to south winds in South Australia, with cloudy weather, but little or no rain, except on the coast and Mount Lofty Ranges, where there may be a few light showers. It will thus be seen that the winter rainfall and its northerly extension in South Australia largely depend on the barometric pressure in the interior. As the summer advances, the belt of south-east trades and high pressure recede to the south, the interior becomes intensely heated, the barometer falls through the rarefaction of the air, and the vapor-laden north-west monsoon sets in on the north coast, with electrical disturbances, followed by heavy rains lasting until towards the end of March, dying away in April as the sun again passes to the north of the equator. The southerly reach of the monsoon will evidently depend on the pressure in Central Australia. In some years it will extend south of the tropics, or even as far as Lake Eyre; in other years only a few hundred miles inland. We thus have a wide belt of country—say, roughly speaking, from the 18th to the 30th parallels—which is constantly exposed to drought, or whenever the winter rains fail north of 30°, or the monsoons do not extend far inland from the north coast. When both of these conditions occur in succession the drought is intensified and wider spread. The north-west monsoon rains in 1887-8 were in excess on the coast, and about an average as far south as Barrow Creek until the end of February; but in March they were very light at Port Darwin (4·160 inches, or 7 inches below the average), and altogether failed inland, whilst this season the monsoon has so far proved abnormally light.

"At Singapore the present year is described as unusually dry, the rainfall up to the end of November being only about 63 inches, or some 40 inches below the average. At Banjoewangie, where it usually rains heavily from December to March (both inclusive), and often till June, the north-west monsoon has only just set in, the rainfall in October, November, and December (up to the 18th) being only 5·061 inches, and from the beginning of the year 41·234 inches, or 10 inches below the average; whilst at Batavia the fall up to December 17th was 61 inches, or 14 inches below the average. The meteorological reporter to the Government of India (Mr. Blanford) sends me the following telegram from Simla:—'Complete rainfall data, present year, not collected. So far as can be judged, total rainfall for the year is in excess of average. Distribution has, however, been unusually irregular, as is frequently the case at minimum sunspot phase in India. Last winter rains slightly below average. Snowfall on Himalayas much below average, and depth of water, snow-fed rivers, also much below average. This year temperature very excessive in April, May, and June, during which period several tornadoes in Northern India of excessive and unusual violence. South-west monsoon rains set in very irregularly. They have been in excess in Burmah, Northern and Central India, and Bombay; deficient in central provinces, and very deficient in districts west of Arravalli Hills and in North Madras. South-west monsoon current retreated earlier than usual, and crops in Bengal and Behar have suffered to some extent from early termination of rains, although rains ample up to that time. Only area of general drought includes West Rajputana, Guzerat, Katheawar, and Cutch; but even there famine is not anticipated. Partial drought in North Madras, compensated by heavy rain October and November. Whole of Southern India has received abundant rain past two months from so-called north-east monsoon. Early termination of rains over Northern India has been followed by persistent excessive pressure. Before and during rains pressure was steadily below average in Northern India, more especially Punjab and the north-western provinces.'

"Comparing our records with those of India, I find a close correspondence or similarity of seasons with regard to the prevalence of drought, and there can be little or no doubt that severe droughts occur as a rule, simultaneously over the two countries. The most remarkable instance of this was the disastrous drought of 1876, the year of the great Indian famine. This drought, it is said, has been traced from 30° south in Australia to 60° north, over 90° of latitude and 100° of longitude. In India it prevailed in all Madras and Deccan, Mysores and the south part of Hyderabad, followed by severe famine in those districts, and a drough

in the central and north-western provinces in 1877. It was also felt at Mauritius. On the north coast of Australia the monsoon rains of 1875-76 were a good average as far south as latitude 22°. At Alice Springs, however, the rainfall during the seven months—October, 1875, to April, 1876 (the usual wet season)—was less than 3 inches, or exceptionally small, being 5¼ inches below the average; and during the twelve months following, or the year ending April, 1877, only 4·346 inches fell, or 7 inches below the average. South of tropics, or around Lake Eyre, the rainfall for the whole year 1876 was only about 1¾ inches. At Adelaide it was 13·434 inches, and the mean over the agricultural districts 15·742 inches. Everywhere the rainfall was largely deficient. The following shows the coincidence of drought in India with years of deficient rainfall at Adelaide:—

Year of Drought in India.	Rainfall in Adelaide.		Remarks.
	Above Average.	Below Average.	
	Inches.	Inches.	
1839	—	1·3	
1844	—	4·3	
1853	5·9	—	At Hobart, 9 inches below; at Sydney 3¾ inches below
1860	—	2·6	
1861	2·9	—	Drought in Australia
1865	—	5·6	Great drought in Australia
1866	—	1·0	Very dry in some parts
1868	—	1·2	
1869	—	6·4	Intense in India
1874	—	3·9	
1876	—	7·7	Great drought and famine in India; great drought in Australia
1877	3·8	—	

"With regard to the periodical recurrence of droughts, Mr. Blanford finds that, eliminating those which have occurred in some part or other of the peninsula, it appears that they have recurred with remarkable regularity at intervals of from nine to twelve years—or, taking an entire century, a mean interval of ten and one-third years. Mr. Meldrum—who included in his investigations the pluvial statistics of Mauritius, Cape of

Good Hope, Melbourne, Adelaide, and Sydney—arrived at the conclusion that years of maximum and minimum rainfall closely coincided with Wolff's years of maximum and minimum sun spots. According to Wolff the years of minimum sun spots were 1843, 1856, 1867, 1878. At Adelaide the rainfall in 1843 was 17·192 inches, or 3 inches below the average; in 1856 it was 24·931 inches, being the middle and wettest year of three good years; in 1867 it was 19·051 inches, or 2 inches below the average; and in 1878, which was also the middle year of three good years, it was 22·083 inches. It curiously happens that two years preceding each of the years of minimum sun spots were characterised by very small rainfall, thus:—1841, 17·956 inches; 1854, 15·346 inches; 1865, 15 506 inches; 1876, 13·434 inches. The rainfall at Adelaide, and to some extent at Melbourne, is often deficient in those years which are wettest on the east coast, and *vice versâ*. Taking the seven months, April to October—*i.e.*, the wheat-growing season—the mean rainfall over the agricultural districts south of Mount Remarkable, deduced from fifty stations fairly evenly distributed, is 16·878 inches, the mean for the year being 21·387 inches. Comparing the rainfall during this season in each year since 1860 with the temperature and pressure of the previous five summer months (November to March) I find:—1. That in the sixteen years when the mean summer temperature was below the average, the following winter rainfall was below the average in eleven years, above the average in two years, and about an average in three years. 2. That in the twelve years when the summer temperature was above the average, the following winter rains were above the average in eight years, below in three years, and about an average in one year. 3. That in the fifteen years when the barometric pressure was above the average in the summer, the following winter rains were below the average in ten years, above in three years, and about an average in two years. 4. That in the thirteen years when the summer pressure was below the average, the winter rain was above the average in seven years, below in four years, and about an average in two years.

"By combining the pressure and temperature it was found:—1. That in the eleven years when the summer pressure was above the average and the temperature below, the following winter rain was below the average in eight years, above the average in only one year, and about an average in two years. 2. That in the eight years when the summer pressure was below and the temperature above, the winter rain was above the average in six years, below in only one year, and an average in one year. From which we obtain the following general rule:—Summer *cool*, with *high* barometer; winter *dry*. Summer *hot*, with *low* barometer; winter *wet*."

The table which follows gives the decennial returns of the rainfall recorded at the Adelaide Observatory in each month, and also the monthly average, for fifty-two years (1839-1890):—

Month.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	Average for 52 years 1839-1890.
January	2·707	0·235	0·103	1·712	0·234	0·766	0·693	0·367	2·984	0·623	0·734
February	0·145	0·000	0·382	0·120	0·907	0·360	0·504	0·067	0·231	1·928	0·684
March	0·249	0·490	0·890	1·741	0·331	0·012	0·317	0·214	0·813	0·576	0·988
April	1·252	2·061	2·528	1·338	0·971	1·419	2·082	0·086	5·654	1·000	1·823
May	1·708	2·114	6·463	2·394	2·242	1·090	4·086	2·119	4·086	1·643	2·884
June	4·622	1·671	2·767	4·563	3·235	0·423	6·021	2·835	4·752	4·221	2·988
July	1·883	2·121	4·200	0·505	2·384	2·724	2·571	4·039	1·211	5·363	2·705
August	1·446	3·381	3·050	1·094	2·342	3·089	1·372	2·389	3·589	3·734	2·566
September......	1·805	0·704	1·856	2·630	1·634	0·686	2·517	1·192	1·504	1·752	1·972
October........	1·305	1·654	1·791	1·316	1·109	2·169	2·733	0·306	3·608	2·544	1·771
November......	0·585	0·897	1·827	0·368	0·039	1·067	0·942	0·655	2·107	2·196	1·157
December	0·310	0·374	0·904	0·957	0·459	0·615	1·863	0·278	0·335	0·199	0·932
Totals	18·017	15·702	26·761	18·738	15·887	14·420	25·701	14·547	30·874	25·779	21·204

Prior to 1856 Sir G. S. Kingston's records are used.

Results of Meteorological Observations at the Adelaide Observatory for the Ten Years, 1881-1890.

Months.	Barometer, Corrected and Reduced to 32° F. and Mean Sea Level.			Temperature. Dry Bulb.							Temperature. Wet Bulb.	Solar Radiation.		Terrestrial Radiation.	
	Mean 9 a.m.	Highest.	Lowest.	Mean.	Maximum.	Minimum.	Mean Highest during the Day.	Mean Lowest during the Night.	Mean Diurnal Range.	Average Number of Days Temperature exceeded 90°.	Mean Temperature of Evaporation.	Mean Highest in Sun.	Actual Highest in Sun.	Mean Lowest on Wool.	Actual Lowest on Wool.
	inches.	inches.	inches.	°	°	°	°	°	°		°	°	°	°	°
January	29·980	30·409	29·345	74·4	112·4	45·1	86·3	62·4	23·9	11	60·8	144·3	180·0	53·3	36·6
February	30·021	·441	·511	72·5	107·6	47·5	84·2	60·8	23·4	9	60·0	143·6	167·0	51·5	36·6
March	·129	·534	·537	69·8	102·0	45·8	80·8	58·9	21·9	6	58·3	139·5	174·0	49·0	32·6
April	·217	·548	·370	63·9	94·5	43·2	73·2	54·7	18·5	1	55·4	129·6	155·0	45·8	30·9
May	·188	·629	·460	57·8	84·0	37·5	64·8	50·8	14·0	0	52·3	117·2	141·7	43·4	25·4
June	·154	·630	·387	53·2	72·2	35·2	59·6	46·9	12·7	0	49·3	112·2	135·0	40·0	25·5
July	·237	·731	·520	51·0	69·4	34·2	57·9	44·2	13·7	0	47·0	111·4	134·5	36·3	23·4
August	·132	·726	·340	53·5	81·1	33·7	60·9	46·1	14·8	0	48·8	118·0	138·3	38·4	21·7
September......	·119	·603	·332	57·2	90·7	38·5	65·8	48·7	17·1	0	50·9	125·5	160·5	40·5	25·0
October	·075	·500	·380	61·2	94·5	39·5	71·1	51·3	19·8	1	53·2	131·6	158·8	43·4	28·0
November......	·055	·466	·520	67·0	105·8	43·9	78·2	55·8	22·4	5	56·3	138·2	166·5	47·2	30·1
December	29·982	·399	·251	70·9	107·5	46·9	82·6	59·3	23·3	9	58·7	141·4	173·6	50·7	32·6
Year	30·107	30·731	29·251	62·7	112·4	33·7	72·1	53·3	18·8	42	54·3	129·4	180·0	45·0	21·7

ADELAIDE OBSERVATORY.

Hygrometric Results for the Ten Years, 1881-1890.

Month.	Mean Temperature of Dew Point.	Mean Elastic Force of Vapor.	Mean Degree of Humidity (Saturation = 100).
	Degrees.	Inches.	
January	50·9	0·374	44
February	50·7	·370	46
March	49·5	·354	48
April	48·3	·338	57
May	47·3	·327	68
June	45·4	·304	75
July	42·8	·276	74
August	44·2	·290	70
September	45·2	·300	64
October	46·2	·314	58
November	47·7	·332	50
December	49·4	·353	46
Year	47·1	·324	57

Rainfall at Adelaide Observatory.

Months.	Rainfall (52 years, 1839-1890).				Mean Evaporation (21 years).
	Mean (Inches).	Mean No. of Wet Days.	Greatest (Inches).	Least (Inches).	
January	0·734	4·3	4·000	0·000	9·023
February	0·684	3·3	3·100	0·000	7·252
March	0·988	6·0	4·600	0·000	6·068
April	1·823	9·1	6·780	0·086	3·670
May	2·884	13·8	7·751	0·245	2·149
June	2·988	15·6	7·800	0·423	1·410
July	2·705	16·4	5·380	0·505	1·504
August	2·566	16·6	6·240	0·675	2·065
September	1·972	13·8	4·640	0·686	3·042
October	1·771	10·8	3·834	0·306	4·962
November	1·157	7·8	3·550	0·039	6·512
December	·932	6·1	3·977	0·105	8·423
Year	21·204	123·6	*30·874	†13·434	56·080

* In 1889. † In 1876.

CHAPTER VI.

A NEW COLONY PROJECTED—PROMOTERS FAIL TO OBTAIN A CHARTER—THE SOUTH AUSTRALIAN ASSOCIATION—BILL FOR FOUNDING SOUTH AUSTRALIA PASSED IN 1834—ACT OF WILLIAM IV., CAP. 95—OUTLINE OF ITS PROVISIONS—THE NEW COLONY TO BE FREE FROM THE INTRODUCTION OF CONVICTS—DIFFICULTY IN DISPOSING OF LAND SUFFICIENT TO ESTABLISH THE COLONY—THE SOUTH AUSTRALIAN COMPANY—THE WAKEFIELD SYSTEM—LAND SALES—STATUTORY DEPOSIT OF £20,000—COLONEL NAPIER—CAPTAIN HINDMARSH, R.N., APPOINTED GOVERNOR—SAILING OF THE "CYGNET" AND "RAPID" TO FOUND THE SETTLEMENT—ARRIVAL OF CAPTAIN HINDMARSH—PROCLAMATION OF THE COLONY—DIVIDED AUTHORITY—DISPUTES BETWEEN THE GOVERNOR AND HIS OFFICERS—THE SITE OF ADELAIDE CHOSEN—THE GOVERNOR'S DISAPPROVAL—SETTLEMENT OF THE DISPUTE—TOWN SURVEY COMPLETED—SALE OF CITY LANDS—RESIGNATION OF COLONEL LIGHT—HIS DEATH—CAPTAIN HINDMARSH RECALLED—FIRST ANNIVERSARY OF THE FOUNDATION OF THE COLONY, THE 28TH DECEMBER—ARRIVAL OF CATTLE OVERLAND—ARRIVAL OF COLONEL GAWLER—CAPTAIN HINDMARSH'S ADMINISTRATION — DUAL CONTROL ABOLISHED— ACT OF 1 AND 2, VICTORIA, CAP. 60—STATE OF THE PUBLIC FINANCES—COLONEL GAWLER'S DIFFICULTIES—HIS BILLS DISHONORED—HIS RECALL—ARRIVAL OF GOVERNOR GREY—HIS POLICY—HIS DIFFICULTIES—ORDERED TO SEND ALL EMIGRANTS EMPLOYED BY GOVERNMENT TO SYDNEY—DECLINES TO CARRY OUT THOSE INSTRUCTIONS—ASSISTANCE GIVEN BY THE IMPERIAL GOVERNMENT—CAPTAIN GREY APPOINTED GOVERNOR OF NEW ZEALAND—PROGRESS OF THE COLONY—DISCOVERY OF THE KAPUNDA AND BURRA MINES—COLONEL ROBE APPOINTED GOVERNOR—HIS POLICY AND ADMINISTRATION—STATE AID TO RELIGION—MINING ROYALTIES—DEFEAT OF THE GOVERNOR'S PROPOSALS—COLONEL ROBE'S TROUBLES—HIS RESIGNATION—PROGRESS OF THE COLONY UNDER HIS RULE.

THE discoveries which Captain Sturt had made in the course of his long and miserable voyage down and up the Murray created some stir when the news of his heroic adventure reached England, and this was increased as soon as the later discovery of an enormous fertile country, as seen from Mount Lofty by the ill-fated Captain Barker, became known. At that time the mother country was in a troubled state. The French Revolution, the agitation precedent to the passing of the Reform Bill, and other social and political causes turned the eyes of many to distant lands, in the hope of bettering their fortunes, which, in those days, showed but a gloomy prospect in the future. As early as 1831 a number of gentlemen formed themselves into a committee for the purpose of founding a colony as an outlet for some of the population, on the principles on which South Australia was afterwards established. Even at that time a number of persons who desired to settle in the projected new colony had been collected

together. They were disappointed. The committee carried on a long and unsatisfactory negotiation with the Government of that day in order to obtain a charter to found a colony. They were not successful, and the intending emigrants were dispersed. The projects of the committee were abandoned, but only for a time. In 1834 another committee was formed, having in view objects similar to those of its predecessor. It was called the "South Australian Association." It consisted at first of twenty-nine gentlemen, all of whom occupied leading positions in England, and of whom eighteen were Members of Parliament. By great exertions that committee obtained a Bill for the colonisation of South Australia, which passed the House of Commons with the support of the Right Hon. Spring Rice, then Secretary of State for the Colonies. On the last day of the session of 1834 it received the Royal assent. During its passage through the House of Lords it was supported by the Duke of Wellington.

The Act of 4 and 5, William IV., cap. 95, under which South Australia was founded, empowered the Crown to erect "one or more provinces" in that part of Australia lying between the 132nd and the 141st meridians of E. longitude and between the 26th° of S. latitude and the Southern Ocean. It further enacted that all persons residing within the said province or provinces should be free, "not subject to the laws or constitution of any other part of Australia, but bound by only those which should be constructed especially for their own territory." It enacted that the Crown might empower any persons, who should seem fit to the Privy Council, and resident within the said Province or Provinces, to frame laws and establish courts, to appoint officers, chaplains, and clergymen of the established churches of England or Scotland, and to levy such taxes as should be necessary to the well-being of the colony. These laws were to be laid before the King in Council with due expedition. Three or more Commissioners were to be appointed by the Crown to carry certain parts of the Act into execution, and their proceedings were required to be laid before Parliament once a year.

The Commissioners were appointed to declare all the lands of the colony, excepting roads and footpaths, to be open to purchase by British subjects, to make regulations for the survey and sale of such lands at such price as they might deem expedient, and for letting unsold lands for periods of not less than three years. They might sell the land by auction or otherwise, but for ready money only, at a price not less than 12s. per acre, and the price was to be uniform. The whole of the cash proceeds without deduction (with a reservation subsequently provided for) constituted an Emigration Fund, to be employed in conveying poor emigrants from Great Britain or Ireland to the colony. The sexes of the emigrants

were to be, as far as possible, in equal proportions, and they were not to be more than 30 years of age. A resident Commissioner of Lands in the colony was to be appointed, with a requisite staff of surveyors. The Commissioners were empowered to borrow £50,000 at an interest not exceeding 10 per cent., the capital sum to be expended on emigration until the sale of public lands had produced an amount sufficient to defray the cost of conveying such a number of poor emigrants to the colony as might be thought desirable. Beyond this the Commissioners were authorised to raise £200,000 on bonds, to be termed "South Australian Colonial Revenue Securities," for defraying the necessary costs, charges, and expenses of founding the colony and of providing for its government; and the bonds were declared "to be a charge upon the ordinary revenue or produce of all rates, duties, and taxes to be levied within the province." The Commissioners might reduce the rate of interest by taking up sums of money at a lower rate than 10 per cent. to pay off any existing security, and the lands of the colony were deemed to become a collateral security.

One most important section in the Act (22nd) ran as follows:—"No person or persons convicted in any court of Justice in Great Britain, or Ireland, or elsewhere, shall, at any time or under any circumstances, be transported as a convict to any place, within the limits hereinbefore described." The operation of this special enactment has conferred an absolutely distinctive character upon South Australia. Its value in developing the resources of the colony cannot be over-estimated, and the present inhabitants of the province cannot be too grateful for this indication of the foresight of the founders of their homes.

The Act contained a provision which made it lawful to establish a constitution or local government for "any of the South Australian provinces" possessing the population of 50,000 souls. The Commissioners were restrained from entering upon the exercise of their general powers until they had invested £20,000 in Exchequer Bills, or other securities, and until land to the value of £35,000 had been sold. The investment of £20,000 in Exchequer Bills was required as security that no part of the expense of founding and governing the intended colony should fall on the mother country.

There was some difficulty in disposing of a sufficient quantity of land to enable the Commissioners to realise the sum of £35,000 which was required, and to secure funds sufficient to enable them to proceed to found the colony, so that after the lapse of two months from the commencement of the sales considerably more than one-half of the extent of land required to be disposed of remained unsold. The Commissioners at the outset had fixed the price of the land at £1 per acre, and each

land order was for eighty acres of country land and one acre of town land; the price being £81. About this time the "South Australian Company" was formed, with a large capital, intended to be employed in the improvement of the colony. It was set on foot by the late George Fife Angas. This company offered at once to purchase the remaining lots of land, provided the price was reduced to 12s. per acre. The Commissioners readily fell in with the proposal. In order, however, to do equal justice to all purchasers, they issued "modified regulations for the disposal of the land" under which the price of all the lands which had been alienated up to that time was reduced to the sum charged to the South Australian Company. Of course no money was returned, but those who had paid for eighty acres of land at £1 per acre received instead 134 acres at 12s. per acre.

The principles on which the colony was established originated with Mr. Edward Gibbon Wakefield. He had noted the evils which had sprung from the plan that had been followed in establishing the colony of Western Australia. Large grants of lands, amounting to tens of thousands of acres, had been made to intending settlers. Those grants were altogether out of proportion to individual requirements, or to the capacity of the grantees to deal with the enormous tracts of country which had been assigned to them. The capital that was introduced into Western Australia was, therefore, wasted, and many of the immigrants who had intended to settle there, and who could get away, left the country in disgust and disappointment. Indeed the colony of Western Australia has only recently emerged from the difficulties which arose from the land-grant system, and the discouragements which consequently crippled the efforts of the limited population that remained in the colony.

Wakefield's theory was that a colony should be self-supporting, and that a revenue should be created by the sale of the waste or unappropriated lands within it; that the whole of the revenue obtained in this way should be used as an emigration fund, and that the price of the land should be fixed sufficiently high to secure a constant supply of hired labor for its cultivation. On this basis South Australia was founded. It was claimed by the promoters of the new colony that, under the regulations made for the sale of land within its boundaries, the tenure of land was superior to that by which it was held in the other Australian colonies. In those settlements the Crown had reserved to itself the right of mining, of cutting timber and stone for public works, and of making roads across any estate at pleasure; whilst in South Australia the land was sold in unconditional and absolute fee simple, without any reserve for any purpose.

A sufficient quantity of land was sold, and the investment of the £20,000 in Exchequer Bills as required by statute was completed. The

Commissioners then set about making the necessary arrangements for the founding of the colony. The Governorship was offered to Colonel Napier—better known as Sir C. J. Napier, who won his honors as conqueror of Scinde. He demanded a small military contingent for the defence of the colony, and, in addition, power to draw upon the Home Government for funds, if required in emergency. The colony, however, was intended to be self-supporting, therefore his proposition could not be entertained; he consequently declined the proffered honor. Captain Hindmarsh, R.N., was gazetted to the post on February 4th, 1836.

On the 20th March, 1836, the *Cygnet*, 239 tons, sailed from London, taking to the new settlement Mr. G. S. Kingston, second in command of the surveying staff, with Captain Lipson, R.N., harbormaster, and Messrs. Finniss, Neale, Symonds, Hardy, and Cannan, surveyors; Dr. Wright, surgeon; Mr. T. Gilbert, storekeeper; Mr. John Morphett, passenger; besides a number of surveyors' laborers, gardeners, and others, with their wives and families. On the 1st of May the *Rapid*, of 131 tons, followed, under the command of Colonel Light, with Messrs. Field, R.N., Pullen, R.N., Hill, and Messrs. Jacob and Claughton, surveyors; Mr. J. Woodforde, surgeon; and some survey laborers. Each of those vessels was provisioned for twelve months, and provided with all necessary instruments for survey operations. The *Rapid* arrived at Kangaroo Island on the 19th August, and the *Cygnet* on September 11th. On arriving at Nepean Bay, Colonel Light assumed command of the expedition. After examining Kangaroo Island and all the east coast of Gulf St. Vincent, he visited Port Lincoln, in Spencer's Gulf. None of the conditions which he considered necessary to fit the place for a large settlement were apparent there. On his return he determined to seek for a better site for the capital of the new colony, on the east coast of the gulf, which he had examined. He soon discovered the inlet or arm of the sea on which Port Adelaide is established, and he had no difficulty in fixing the site of the chief town.*

Governor Hindmarsh sailed from England in H.M.S. *Buffalo*, on July 23rd, and arrived in Holdfast Bay on December 28th. He landed on the same day with his family and suite. They were received by the officers and gentlemen who had previously arrived, and had fixed their habitations at what is now known as Glenelg. His Excellency met the members of his Council in the tent of the Colonial Secretary, where the Orders in Council for erecting South Australia into a British Province and appointing the colonial officers were read, as was also His Excellency's commission as Governor and Commander-in-Chief. The Governor, the members of his Council, and the other officers were then sworn in. The

* Capper's South Australia. Lond., 1839.

Governor's commission was afterwards read to the settlers, of whom there were about three hundred present, and the British flag was displayed under a royal salute. The marines who formed the Governor's escort or guard of honor fired *feu de joie*, and a salute of fifteen guns was fired from the *Buffalo*.* This was the ceremony of founding South Australia.

Whilst the Governor possessed the necessary powers for the ordinary government of the colony, he could not exercise any control over the administration of the land. That was in the hands of Mr. James Hurtle Fisher (afterwards knighted), Resident Commissioner under the Board of Commissioners who were in London. This division of authority gave rise to serious disputes between the Governor and his officers, and much public inconvenience was felt in consequence. Colonel Light, the Surveyor-General, had served with considerable distinction in the Peninsular war, and had been on the staff of the Duke of Wellington. He had great nautical knowledge, for he had been an officer in the Turkish navy. He was a man of varied but solid acquirements, of considerable force of character, genial manners, and in all respects well fitted to fill the post which he had undertaken. Before selecting the present site of Adelaide he had examined the coast carefully: Kangaroo Island and Port Lincoln were abandoned by him as unsuitable for settlement, and Encounter Bay was rejected on similar grounds. The site of Adelaide was not determined on without anxious care and deliberation. It seemed to him (and experience has amply confirmed the soundness of his views) that the spot he had chosen possessed all the requirements which appeared to be indispensable for the establishment of a large city. There was water in abundance (the Torrens † flowed through it), the country surrounding it was level and fertile, well timbered and well grassed. The elevation of the site above the sea level was admirably suited for drainage, if ever that became necessary; there were no hostile aborigines to contend against, and the climate in his judgment was all that could be desired.

Captain Hindmarsh, however, did not approve of the site of the new city of Adelaide; he wished to bring it considerably nearer to the sea shore. To this Colonel Light would not consent. Amongst the settlers themselves there was much diversity of opinion as to where the city should be located. Eventually a meeting of persons who had bought land assembled to consider the question, and the choice of Colonel Light was endorsed by such a majority that all controversy on the subject was extinguished. In the meantime the surveys went on very slowly. There

* Capper's South Australia. Lond., 1839.
† The native name of this stream was Karri-Wirra-Parri (Wyatt).

was a great deficiency of the appliances required to move the surveyors and their camps from place to place, and much dissatisfaction arose. Whatever inconveniences might have been felt by those who were on the spot, and who had been there from the outset, the arrival of a large number of emigrants before the surveys were sufficiently forward to enable them to be settled on the land only made matters worse. Much of this trouble was distinctly due to the provisions of the Act, which required £35,000 to be raised by the Commissioners from land sales before they could make any arrangements. Thus it was that many purchasers, whom the Commissioners could not control or influence, left England in a few months after the departure of the first expedition, instead of waiting until advices had been received as to the site of the capital.

The town surveys were completed by the 10th March, 1837; 1,042 acres had been laid out and numbered, part in North Adelaide and part in South Adelaide, and a plan of the town prepared and exhibited for public inspection. On the 23rd the Resident Commissioner and the Surveyor-General put the representatives of 437 preliminary sections in possession of their allotments. On the 27th the remainder of the 1,042 acres were put up to public auction at the upset price of £1 per acre. They realised an average of £6 0s. 9d. each.

Meanwhile Mr. Kingston had proceeded to England to lay before the Commissioners a plan for prosecuting the surveys in a more expeditious way than that in which they were being carried on. The Commissioners adopted Mr. Kingston's suggestions, and they instructed the Resident Commissioner to follow out the course that had been proposed by him. If the Surveyor-General declined to do this, Mr. Kingston was to take charge of the surveys and Colonel Light was to be otherwise employed. On receipt of the new instructions Colonel Light resigned, and all the surveyors resigned with him. These circumstances did not add to the harmonious progress of affairs in the infant settlement. Colonel Light took the circumstances which led to his resignation much to heart. His position preyed upon his mind, and in the following year he died. His remains were accorded a public funeral, and he was buried in the centre of the public square which bears his name. A monument was erected over his grave; and, at the time of writing, a proposal is on foot to replace it by another more in accordance with the public estimation in which his eminent services are held. Mr. Kingston was much blamed for what had taken place, but without just reason. Colonel Light thought he had been undermined by him. A Committee of the House of Commons, which afterwards inquired into South Australian affairs, completely exonerated him from all blame in the matter.

The Governor was continually embroiled with, and, it may be believed, embarrassed by, those over whom he was supposed to have official control. Eventually complaints were forwarded to the Secretary of State, who recalled Captain Hindmarsh in 1838. He left the colony on the 14th of July in that year. The day before he embarked he was presented with an address signed by some of the most influential colonists upon his relinquishing the Governorship of the colony. Mr. George Milner Stephen was sworn in as Acting Governor pending the arrival of Captain Hindmarsh's successor, Colonel Gawler, which took place on October 17th in the same year.

Captain Hindmarsh's rule extended over a little more than eighteen months; but even during that short time some progress had been made towards founding the judicial system, which was developed with so much success in subsequent years. A Supreme Court was established, and Ordinances to enable the Governor to create districts, and for the erection of Courts of resident magistrates; to levy certain duties on spirits and tobacco, on property sold by auction, and for licensing auctioneers, wholesale spirit dealers, distillers, and rectifiers; to levy Customs duties, and for the preservation of the port, harbors, &c., and for the regulation of shipping. On the 3rd June, 1837, the second number of *The South Australian Gazette and Colonial Register* was published in the colony. The first number appeared in London previous to the departure of the *Buffalo* with the main body of emigrants. That literary enterprise still flourishes in the shape of *The South Australian Register*, one of the leading daily papers in the colony.

The first anniversary of the foundation of the colony, by the landing of Governor Hindmarsh and its proclamation by him, was celebrated by a public dinner " at the Southern Cross Hotel in commemoration of that event, on which occasion forty-eight gentlemen sat down to an excellent dinner of four courses and dessert." The South Australian of to-day celebrates the foundation of the colony in a different fashion. The 28th December is always observed as a strict public holiday, and tens of thousands of prosperous colonists flock to Glenelg by rail to enjoy the festivities which are always indulged in on that occasion. Their comfortable appearance, their orderly behavior, their well-dressed wives and families, who form no insignificant part of the annual demonstration, give stronger evidence of the general prosperity of the colonists than pages of writing could supply. On the 1st January, 1838, the first races were held in Adelaide, "and it is said that on the first day upwards of 800 persons were present."* On the 26th the Governor laid the foundation of a stone church (Trinity Church, on North-terrace), and the ceremony

* Capper's South Australia.

was concluded by the Rev. C. B. Howard, Colonial Chaplain (Church of England), addressing the assembly and invoking the Divine blessing on the undertaking.

On April 3rd an important event, which had a wonderful influence on the development of the colony, took place. Mr. Joseph Hawdon arrived in Adelaide overland from Sydney, after a journey of ten weeks. He brought with him a mixed herd, comprising 335 bullocks, cows, heifers, and horses. He lost only four bullocks in the course of his long and certainly risky journey. This welcome addition to the resources of the new settlement so elated the colonists that a public dinner was given to Mr. Hawdon, which was attended by some ninety persons. A snuff-box was presented to him in the name of the people of South Australia, and an ox from his own herd was roasted whole to do honor to him and the occasion. His arrival had established a series of facts of the utmost importance to those portions of the continent which lay to the east of South Australia. The country he had traversed was fairly good, and a practicable route existed for the introduction of all kinds of stock. There was no further danger of any prolonged scarcity of beef and mutton, and a new source of trade was opened up. Mr. E. J. Eyre* soon after arrived with another mixed herd of 300 head of cattle, and a few months later Captain Sturt (subsequently Colonial Secretary) with another herd of 400 head. The travels of those enterprising bushmen were often impeded by attacks made upon them by the natives, and much trouble ensued. These savages were in course of time forced to leave travellers alone, and it was not long before the overland journey from Sydney became safe from all dangers, except those arising from bush fires and periods of drought.

Captain Hindmarsh's successor was Colonel Gawler, an old Peninsular officer, who had served with great distinction in no less than six general engagements in Spain, and on the memorable 18th of June, 1815, with the 52nd regiment. He arrived in the colony on the 12th October, 1838. Captain Hindmarsh's administration of the affairs of the colony cannot be regarded as a success. His early training in the navy in the days of Nelson, under whom he served at the battle of the Nile, was not of a kind calculated to develop those qualities of diplomacy and statesmanship, which, if necessary in the government of a well-settled community, were absolutely indispensable in the founding of a new state, where every institution had to be built up. If he failed it could not be surprising; because, under the circumstances in which he was placed, and hampered, as he was, with the acts of an official not responsible to him, it would

* Mr. Eyre afterwards became Protector of Aborigines, then Lieutenant-Governor of New Zealand, and eventually Governor of Jamaica.

have been difficult for any one to succeed. When he arrived in South Australia the population amounted to 546 souls; when he retired it had increased to 2,377. The large increase in the number of settlers overtook him and the other authorities in the colony before they were properly prepared for them.

The twofold control of the Governor and the Resident Commissioner was determined by the Act 1 and 2 of Victoria, cap. 60. The new Act provided that, instead of the making of laws and the levying of taxes being left as provided for in the Act of William IV., cap. 95. those powers should in future be exercised by three or more persons resident in the colony, chosen by the Sovereign in Council; and the authority to appoint officers, chaplains, and clergymen was repealed. The Sovereign was empowered to appoint the members of the Council and the officers of the Government under the sign manual, instead of by orders in Council. "The Commissioners were empowered to raise the residue of the £200,000 mentioned in the former Act, and also other sums which they were by either Act authorised to raise, by selling redeemable annuities. They were also empowered to employ money raised on land or revenue securities convertibly, and to raise money on the security of the revenue to pay debts incurred to either fund; the debt incurred to the Emigration Fund was never to exceed one-third of its amount for the current year, and the Commissioners were authorised to apply the proceeds of land sales in payment of revenue securities." This Act materially altered the position of affairs in the colony, and if it had come into operation earlier than it did, perhaps some of the troubles which fell upon the colony might have been avoided.

In 1836 and 1837, the first two years of the colony's existence, there was no revenue. The cost of the Governor and the officers under and independent of him, for salaries alone, was £4,250; the Governor's salary being £800. These expenses were paid from moneys raised by loans and by advances made from the Emigration Fund. In 1837 the public expenditure amounted to £5,283, whilst the revenue was *nil.* In 1838 the revenue amounted to £1,448, and the expenditure to £16,580. The prospects of the future were not very hopeful from a financial point of view, because there was a certainty that the expenditure would increase, and almost an equal certainty that the revenue would not keep pace with the requirements of the public service.

When Colonel Gawler arrived he found things in a very unsatisfactory condition. There was a population of 3,680 souls in the colony. but little, or, it might be said, nothing, had been done towards settling them on the land. Adelaide then consisted of about 330 dwelling-houses of various descriptions, a great number of them built substantially

of brick or stone; but the country sections had not been in the hands of the proprietors for more than four months, and only about 200 acres had been ploughed. It was hoped, however, that at least 2,000 acres would be under cultivation in the course of another year. Still, the people remained about the city, which was not in a prosperous condition, for a great deal of land speculation had been carried on which had caused much financial embarrassment. Colonel Gawler did his utmost to compel landowners, who were squatting on the park lands, to betake themselves to their own possessions and to cultivate their land. He also projected extensive public works to provide employment for those who had no land of their own, and who would otherwise have become a burthen on the community. The outcome of this policy was a heavy expenditure, which the revenue of the colony was insufficient to meet. Colonel Gawler drew upon the Home Government in order to meet current liabilities, and as his authority to do this was not recognised, his bills were returned dishonored. The revenue for 1839, 1840, and 1841 amounted to £75,773. The expenditure during the same period was £357,615, leaving a deficiency of £281,842.

The return of Colonel Gawler's bills brought about a complete financial collapse in the colony, and numbers of persons were absolutely ruined. The temporary prosperity which had been secured by the Governor's policy was purchased at a very dear rate. Colonel Gawler was recalled, and was superseded by Captain Grey, who, it is said, entered Government House on the 15th May, 1841, without giving any previous intimation of his proposed visit, and announced to Colonel Gawler that his bills had been dishonored. He then produced Colonel Gawler's letter of recall and his own appointment as Governor in his place. It is difficult to believe that the British Government would act with such discourtesy to any official, especially to one who had served his country so well as Colonel Gawler had done, but the fact has been publicly stated in several works on South Australia, and has never been contradicted. There is no doubt that Colonel Gawler was badly treated. Indeed, the fact is clear from the following extract from the report of the Select Committee of the House of Commons appointed to investigate the affairs of South Australia:—"With regard to Colonel Gawler, it is impossible to doubt that when he entered on the duties of his office things were in a state of great confusion, and that the difficulties he had to contend with were most embarrassing; that, shortly after he arrived in the colony, he represented these circumstances and gave the Commissioners reason to expect a considerable excess of expenditure over what had been provided; that amongst those witnesses who have most decidedly pronounced his expenditure excessive, none have been able to point out

any specific item which could have been reduced without great public inconvenience; whilst the chief item of expenditure, incurred on account of the Government House and the public offices, was one that the late board had authorised."

In 1840 there was some trouble with the natives in the South-East. About the middle of the year, a brig named the *Maria* was cast away on the south coast, about three days' journey to the south-east of the mouth of the Murray River, and a report reached Adelaide, several days afterwards, to the effect that all of the survivors of the wreck had been murdered by blacks. A party was sent out under the charge of Lieut. Pullen, R.N. (now Admiral), to visit the district and inquire into the circumstances. After a short search, the dead bodies of seventeen men, women, and children were discovered, partly buried in the sand. The flesh had been completely stripped off the bones of one, which was that of a woman. It was believed that it had been devoured by the murderers. The blacks in the neighborhood had the clothes and blankets of the men, as well as bonnets, shawls, &c., which had belonged to the women.

On receipt of Lieut. Pullen's report, Governor Gawler dispatched Major O'Halloran, the Commissioner of Police, and a strong party, with instructions, if possible, to find out the guilty persons, and to punish them. The offenders belonged to a tribe which inhabited the south coast, near Lacepede Bay. The expedition crossed the mouth of the Murray on August 21st, and on the following day made prisoners of thirteen men, two boys, and about fifty women and children. The men were retained in custody, and the rest were set at liberty. All the captured natives had in their possession some portions of the shipwrecked persons' effects, and some of the clothes were saturated with blood. After some trouble, two more blacks were arrested, and on the following day they were tried by court martial for the murders. Two of them were found guilty and sentenced to death. The condemned men were hanged next day in the presence of a large number of the tribe, who had been collected to witness the executions. This summary act of retribution made a profound impression on the natives, and it had a much more salutary effect upon them in checking attacks upon white people than if the guilty persons had been brought to Adelaide for trial in the usual way.* The punishment which overtook the murderers was inflicted under the Governor's sanction. It was probably not in accordance with law, and Colonel Gawler was severely blamed by the authorities in England, and by others for the course that he had pursued. Perhaps the Governor overrated the extent of his authority in dealing with such a contingency; but there can be little doubt as to the wisdom of his policy in convincing the natives of the overwhelming power of the white people.

Colonel Gawler returned to England, and Captain Grey, acting under instructions, set to work to effect the most sweeping retrenchments. The Commissioners in London had been abolished, and the government of South Australia was in the hands of the Secretary of State for Colonies. The sudden collapse of the province was so disastrous that its condition pressed itself upon the attention of the British Parliament. A Select Committee, which investigated the affairs of the new settlement, brought up a report which helped much to restore its fortunes. A sum of £155,000 was voted by Parliament as a loan to cover some of Colonel Gawler's bills. This was afterwards converted into a free gift. Besides this sum £27,900 was loaned to the colony for the payment of Colonel Gawler's bills on the Colonisation Commissioners, and £32,646 to meet bills drawn by Governor Grey for the support of "pauper immigrants," and to meet the charge of the interest on the bonded debt of the colony, temporarily assumed by the consolidated debt of Great Britain. Those two sums were punctually repaid, and the debt due by the Colonial Government to the English Government was thought to have been extinguished in 1851; but in 1887 a claim for £15,516 for interest was made against South Australia. As a matter of equity, this sum was not properly chargeable against the colony, although it was promptly paid. This ended the troubles that arose from Colonel Gawler's administration.

Captain Grey was the servant of the Secretary of State, and to all intents and purposes South Australia became a Crown colony. It was ruled by the Governor and his Executive Council, under instructions from England. The people had no voice in public affairs, no control over the taxation imposed upon them, nor over the public expenditure. They had no representation except in the city council, which was quite at the mercy of the Governor. His Excellency appeared to throw every obstacle in the way of its operations, and it finally collapsed in 1843. The retrenchment policy of Governor Grey was the cause of considerable public dissatisfaction. In one of his despatches to the Secretary of State he stated* that he was often threatened with personal violence; that tumultuous meetings were held and seditious language used; the police were tampered with, and he was for some time without the means of resisting any attack that might be made, and of which he was in hourly expectation. No outbreak, however, took place, and the people, becoming scattered over the country in the employ of landowners, generally resigned themselves to the new state of affairs, which gradually and steadily improved. The Home Government, however, did not seem to have much confidence in the future of the colony, even under Governor Grey's rigorous administration. † "In the month of August

* Governor Grey to Lord Stanley, October 24th, 1842. † *South Australian*, March 3rd, 1843.

last His Excellency received instructions from the Right Honorable the Secretary for the Colonies to send to Sydney all the laboring emigrants at present on Government works." The Governor did not obey those instructions. He knew that a large number of persons had left the colony for New Zealand and elsewhere. He saw also that the expense of doing what he was directed to do would be much greater than that which would be incurred by keeping them employed at the cost of about £4,000 per quarter. He wrote to Lord Stanley* and said, "Had I at once sent all the emigrants away, the colony would have been irretrievably ruined, and the whole of the expenditure laid out upon it would have been utterly lost. I should, in the first instance, have had to send away 2,427 souls, that is one-sixth part of the whole population; the fact of having done so would have made paupers of a great many more, who must have been removed in the same manner, and there would have been no laborers remaining in the colony to procure food for those who were left." Previous to the arrival of this despatch in London the "Act to provide for the better government of South Australia" was forwarded to Governor Grey, and that Act, with the pecuniary help given by the Imperial Government, terminated the difficulties and uncertainties which had inflicted very severe injury on the colony. Captain Grey retained his Governorship until the 25th of October, 1845. His task was a hard one. His retrenchment policy had pressed sorely on many of the colonists, who could not forget what they had endured in consequence. The ordinary revenue of the colony, during the whole course of his administration, was never equal to the expenditure, and the balance had to be provided for out of the proceeds of land sales. When he assumed office the population was 14,562; when he left, in 1845, it had increased to 21,759. The steady increase in the number of the people did not tend to decrease the difficulties of his position. Whatever they had been, he had overcome them all, and he left for his new Government in New Zealand with the regrets and good wishes of a large majority of those who remained behind. It may be doubted whether his administration alone would have placed the colony in the greatly improved condition in which it was when he retired. Other causes had contributed to the revival of trade and prosperity. The discovery of the Kapunda Mine, in 1842, and of the Burra Mine, in 1845, did much to infuse a new spirit into the colonists. Trade extended, the land sales increased, and the future progress of the province seemed to be assured.

In 1841, about nine months after the execution of the Maria Creek murderers, some stockowners who were travelling overland with sheep

* Governor Grey to Lord Stanley, December 26th, 1842.

were attacked by the Rufus tribe of blacks near the N.W. Bend of the River Murray. Mr. Inman, who was the leader of the party in charge of the sheep, and two of his men were badly wounded, and all of the sheep, numbering about 7,000, were taken by the natives. When the circumstance became known, Major O'Halloran was sent out in command of an expeditionary force to punish the assailants if they could be traced out. After an absence of a few days, during which nothing had been done, the expedition was recalled, in consequence of the censures that had been passed upon Colonel Gawler for his actions in connection with the Maria Creek murders.

As soon as Major O'Halloran reached Adelaide, a volunteer party under Lieut. Field, R.N., set out to endeavor to recover the sheep which had been stolen. Nine days after their departure, they met a body of natives between 200 and 300 strong. They at once attacked the white men and endeavored to surround them. Lieut. Field and his party escaped with difficulty, after shooting some of their assailants. After their return to Adelaide another expedition was organised, but the Governor (Captain Grey) would not permit its members "to levy war or to exercise any belligerent actions" against the offenders. Nothing resulted from this expedition except the finding of a white man who had lost all his cattle (700) in an attack made by the natives, and three members of his party who were killed by them. The overland journey to Adelaide from the eastward had now become dangerous in consequence of the unremitting hostility of the tribes. An inspector of police (Mr. Shaw) with twenty-nine men was sent away into the disturbed country to meet some people who were bringing cattle overland, in order to protect them from the outrages of the natives. The cattle owners had been attacked by the blacks, but had repulsed them. A few days afterwards the police party was assailed by them. They persistently rejected all friendly overtures on the part of the whites, and, probably confident in their numbers, persevered in their attacks. A short conflict ensued, in which thirty of the aborigines were killed and about ten wounded. When the expedition returned to Adelaide, an official investigation was made into the circumstances of the case and the conduct of the inspector and his men. The police party was completely exonerated from all blame in the matter. In order to obviate, as far as could be done, any further troubles, Mr. E. J. Eyre was appointed protector of aborigines, and stationed at Moorundi, on the Murray. He soon secured the confidence of the natives, and from the time of his appointment outrages by the blacks upon travelling white men entirely ceased.

Colonel Robe became Governor on October 25th, 1845. His acceptance of office was not due to personal inclination or to ambition, but solely to

his obedience to commands placed upon him. He did not like his position, and he was not adapted to fill an onerous post, such as that which had been vacated by Govenor Grey. He was essentially a soldier, and unacquainted with the exigencies of a civil administration. Nevertheless, the colony progressed greatly during his *regime;* but its progress sprang from the development of some of the newly-discovered resources of the province more than from any special statesmanlike policy of his own. Some important measures were initiated by him in Council, but they caused dissatisfaction amongst the colonists, and one of them was signally defeated. At the time he became Governor, the whole of the legislative power was vested in him, as Governor, and eight members of the Executive Council, four of whom held official positions, the other four being nominated by the Crown. The Council thus formed was presided over by him, but it was necessary that five of the Council besides himself must be present in order to form a quorum. In 1846 a proposition was brought before the Council for making State grants to certain religious bodies. It is not clear whether the proposal originated with the Governor, or was suggested by a member of the Council. The proposition was agreed to, and the grants made under it continued in force until 1851. The passing of this measure was very ill received by the public. It was a distinct violation of one of the principles upon which the colony was founded—that there should be no connection between Church and State ; moreover, the grant was most unfair in its operation, because it could not extend to all the various religious sects which were represented in the colony. Men of all shades of religious opinions concurred in condemning and denouncing the law, and the Governor fell greatly in public estimation. In 1848 Governor Robe sanctioned the grant of an acre of land in Victoria-square to the Right Rev. A. Short, D.D., then newly appointed Anglican Bishop of Adelaide, as a site for a cathedral. This grant was not made known at the time it was executed, and it was not registered in the General Registry Office for more than three years after. If the fact had become public, the issue of the grant would probably have been resisted without any delay. It certainly would have formed ground for an appeal to the Secretary of State in England, and it could not have failed still more to embitter the public feeling against the Governor, which was already very strong.*

Another source of public dissatisfaction arose in consequence of the introduction of a Bill into the Council to place a royalty on all minerals

* This subject cropped up in 1855. In that year Bishop Short claimed the acre in Victoria-square, and the Corporation of Adelaide resisted his Lordship's claim. The Bishop brought an action in the Supreme Court to assert his right, but the case went against him. The verdict was not challenged, so the matter ended.

raised in the province. The official members of the Council were compelled to support the Governor's proposal; the non-official members were all opposed to it. If the question had come to the vote, the Bill must have been carried by the Governor's casting vote. Seeing this, the non-official members left the Council Chamber in a body before the division could be taken. There was no quorum; the business, therefore, could not be proceeded with, and the measure was shelved. The Governor then attempted to impose the royalty without the concurrence of the Council; but a trial in the Supreme Court ended in a decision that the Governor did not possess the power that he had claimed to exercise. Governor Robe, wearied out at last with the turmoils in which he was continually plunged, was relieved of his office at his own request. He was succeeded by Sir Henry Edward Fox Young, on August 2nd, 1848. Although Colonel Robe was not successful as a Governor, South Australia made great and substantial progress during the term of his administration. The population had increased from 21,759 in 1845, to 38,666 in 1848. The ordinary revenue had grown from £32,433 in 1845, to £82,411 in 1848; and in each of the last years of Colonel Robe's rule there was a considerable surplus of revenue over expenditure. The sale of land also had advanced considerably. In 1845 the quantity of land that had been sold from the date of the founding of the colony was 380,371 acres. In the three years ending in 1848, 123,605 acres had been disposed of. The proceeds of the land sales up to the end of 1845 amounted to £363,017. From 1846 to 1848, inclusive, they amounted to £167,865, the grand total being £530,877. The colony now was thoroughly established, its public affairs were in a prosperous condition, and there was apparently little cause for anxety for the future.

CHAPTER VII.

SIR HENRY YOUNG — INTRODUCES THE MAIN ROAD SYSTEM AND DISTRICT COUNCILS—CHANGE IN THE FORM OF GOVERNMENT—THE LEGISLATIVE COUNCIL—STATE AID TO RELIGION ABOLISHED—THE GOLD DISCOVERIES—EXODUS OF THE POPULATION—RUN ON THE BANKS—SUSPENSION OF TRADE—DISBANDMENT OF THE CIVIL SERVANTS—SIR HENRY YOUNG'S DIFFICULTIES—A GOLD COMMISSIONER APPOINTED ON THE DIGGINGS—THE OVERLAND GOLD ESCORT—WANT OF A CIRCULATING MEDIUM—EXPEDIENTS OF STORE AND SHOP KEEPERS—THE BULLION ACT—HESITATION OF THE GOVERNOR TO ASSENT TO IT—THE ACT ASSENTED TO AND PASSED IN A FEW HOURS—LARGE PROFITS OF THE BANKS—THE TURNING POINT IN SOUTH AUSTRALIAN HISTORY—LARGE DEMAND FOR LAND—OPENING UP OF THE MURRAY—CAPTAIN CADELL—MR. W. RANDELL—VOYAGE OF THE "LADY AUGUSTA"—REACHES SWAN HILL, ON THE DARLING—SUCCESS OF THE EXPEDITION—THE MURRAY RIVER TRADE—CLEARING THE MURRAY—REFUSAL OF THE VICTORIAN GOVERNMENT TO ASSIST—PORT ELLIOT—VICTOR HARBOR—LARGE INCREASE IN THE POPULATION—A NEW CONSTITUTION BILL—RETURNED WITHOUT THE ROYAL ASSENT—DEMAND FOR SELF-GOVERNMENT—THE ADMINISTRATION OF GOVERNOR YOUNG—LARGE INCREASE IN POPULATION AND REVENUE—UNWISE SYSTEM OF IMMIGRATION—LOSS TO THE COLONY IN CONSEQUENCE—SIR R. G. MACDONNELL—THE CRIMEAN WAR—PREPARATIONS FOR THE DEFENCE OF THE COLONY—THE NEW CONSTITUTION—GOVERNOR FAVORS A SINGLE CHAMBER—THE NEW CONSTITUTION FRAMED—ASSENTED TO BY THE QUEEN—IS PROCLAIMED AND COMES INTO FORCE—THE FIRST MINISTRY—THE GOVERNOR'S ATTITUDE TOWARDS IT—MEETING OF PARLIAMENT—ITS PROCEEDINGS—SIR R. G. MACDONNELL'S ADMINISTRATION.

SIR Henry Young was transferred from the Eastern Province of the Cape of Good Hope, of which he was Lieutenant-Governor, to take a similar rank and position in South Australia. He had previously been Governor of Prince Edward's Island. Unlike his predecessors in office, he had had considerable experience in civil administration. He was not a man of shining ability, but he was thoughtful and cautious, and able to rise to the occasion if any serious difficulty pressed upon him. Reserved in manner and somewhat exclusive in his associations, he never became popular, but he deservedly gained the respect of all those with whom he came in contact. During his tenure of office, which lasted from the middle of 1848 to the end of 1854, momentous events occurred, which permanently changed the condition of the whole of the Australian colonies, except that of the struggling settlement at Swan River. The colony is indebted to him for the initiation of an extensive main road system, which provided the principal means of communication between the outlying country and the capital and port, before railways were constructed. He also introduced the district council system from the Cape

of Good Hope, which has become the most valuable of existing institutions in the colony for local self-government. Whilst it conferred upon locally-elected bodies very large privileges and powers, it imposed on them considerable obligations, and it gradually weaned the country settlers from that unwholesome dependence on the Government which had hitherto prevailed to do for them most things which they ought to have done for themselves. It took many years to bring about this result. The Corporation of the City of Adelaide, whose powers and functions had been in abeyance for nine years, was revived by him in 1852. Previous to this a great alteration had been made in the political condition of the colonists. In 1851 the old system of government by the Governor and his nominee Council was abolished, and a Legislature of one Chamber, composed of sixteen elected members and eight nominees, erected in its stead. Four of the nominated members were members of the Executive Council, and filled the chief official posts in the colony. The remaining four were appointed by the Governor himself, subject to the approval of the Crown. This approval, however, was merely a matter of form. The Legislative Council, as the new Chamber was designated, exercised control over the expenditure chargeable to the general revenue of the province, whilst the Governor, as representing the Crown, possessed the disposal of all the income derived from the sale or leasing of the public lands. This form of government was originated by Earl Grey, K.G., who at that time was Secretary of State for the Colonies. Although not adapted to fulfil all the requirements of a rapidly growing colony, it was gratefully accepted. It had one merit — that it conferred upon the colonists representation, not complete, but still representation, and a considerable share in the legislative power which was exercised through the Crown.

One of the earliest and most valued of the Acts of the new Legislature was to abolish for ever all State aid to religion. The question had rankled in the public mind ever since the rule of Colonel Robe; and, at the first elections which took place under the new law, it was made the principal test of the candidates. The elections over, the objectionable law was summarily disposed of, and the question was finally set at rest. Ever since then all religious bodies have been upon an equal footing in their relations to the State. They are all self supporting, and work out their own progress in complete freedom.

The Legislative Council had little time to develop any of the ideas which were entertained by the newly-elected members before a surprise came upon Australia which unsettled the whole of the colonies, except perhaps Western Australia, with which there was very little intercourse at that time.

Gold in large quantities had been discovered in California, and many persons left Australia to try their fortunes in that distant and then unknown country. In 1851 gold was found in greater abundance, first in the colony of New South Wales, and in a very short time afterwards in Victoria. When the news arrived in the province and was confirmed, everything was suddenly turned upside down. All business was suspended whilst the wonderful discoveries were discussed, and then an exodus began. The miners left the Burra Burra and Kapunda copper mines, and all operations there were suspended. The shopkeepers for the most part closed their places of business and made for the diggings. Every one who could raise sufficient funds for the journey went away. The ships in harbor, which traded only between the mother country and the colony, were laid on the berth between Adelaide and Melbourne to carry off the intending diggers, who were wild with excitement. Most of the able-bodied men left the colony, and the population which remained was composed principally of women, of men who were incapable of hard work, and small children. Gold seekers in numbers took with them their boys of nine and ten years of age to help them. The lads could not dig, but they could rock cradles for washing the auriferous dirt. Many took their whole families to live with them on the goldfields in tents or huts, or under any shelter that was procurable or could be devised. People who could not pay their passages from port to port walked overland to the diggings, a distance of over 500 miles. A large part of the journey was through the desert, which stretches for ninety miles between the River Murray and the boundary of the colony. Water was procurable there in those days in only two or three places, and provisions on the direct line of route were unobtainable. For all this the adventurers pressed on, and notwithstanding the difficulties which they encountered, and the privations they were compelled to suffer, there are few records of casualties amongst them.

The banks were besieged, and the province almost entirely drained of specie. On the diggings bank notes were of little use, gold coin was not obtainable, and those who drew money from the banks to pay their way outward were compelled to take silver in such currency as the banks could supply. Bags containing shillings, sixpenny pieces, fourpenny pieces, and coppers were handed across the bank counters in liquidation of cheques drawn against deposits, and it was with difficulty that the banking institutions were able to hold their own. Bills on England were scarcely negotiable, so great was the strain upon the banks to meet the incessant local demands upon their resources. With the suspension of trade which took place the revenue fell off. Sir Henry Young accordingly set to work to retrench. A large number of the civil servants sent in

their resignations; the remainder, with very few exceptions, were relieved from their duties. They received, in some cases, leave of absence without salary, with the promise that they would be reinstated in the service when better times came. Those promises, however, were not generally adhered to. The staff of public officers was so reduced that in many departments one only was retained, just to perform the very small amount of routine work which arose, and some departments were closed entirely. There were no complaints of the action of the Governor in the emergency; his course was unavoidable. His great difficulty was to provide for the wives and families of those who had gone away, in the event of their not being successful on the goldfields, or of their not returning. Fortunately, after a few months, the most cheering intelligence of the general success of the South Australian adventurers arrived in Adelaide. The most of them had done well. Gold they had, but it was difficult to remit funds, because communication between the two colonies was so uncertain. Sir Henry Young, at the suggestion of some merchants, caused the formation of a gold escort, to proceed to the diggings and bring back to Adelaide the gold belonging to the South Australian diggers. A gold commissioner for South Australia was appointed, and Mr. Tolmer, Chief Inspector of Mounted Police, took charge of the first escort. It was composed of several troopers, who took with them an ordinary spring cart with iron boxes in it to contain the gold. The route over which the party travelled had been well explored. Cattle had been brought overland years before through quite as bad country. The natives were harmless. Hundreds of diggers had walked safely overland without any escort at all. The only danger to be apprehended was from bushrangers—"old lags and Vandemonians," as they were called, of whom there were not a few—on and hanging about the diggings and their approaches, who certainly were dangerous to isolated travellers and small parties of men moving from place to place—that is if they had anything worth plundering. The escorts started fortnightly, commanded, as circumstances required, by Inspectors Alford, Stuart, and Crombie. During the many months in which they travelled backwards and forwards no attempt was made to molest them in any way, and none of the gold was lost either through accident or by robbery.

When the gold came into the colony a new difficulty arose—what could be done with it? Crude metal was not a legal tender. There was no coin in the place, or so little as to be wholly inadequate to meet the most common requirements of trade. In order to provide small change some of the store and shop keepers issued notes for sixpence, threepence, and even twopence. This kind of currency was accepted, and remained in use until small coins and copper, or copper tokens, which answered the

temporary purpose just as well, were imported and placed in general circulation. The banks were willing enough to buy the gold, but they could not deal with the bullion in the only way in which it could become serviceable to the owners who were on the spot and to the public. Mr. George Tinline was at that time acting manager of the South Australian Bank, the first bank founded in the province, and then the largest and most influential in the colony. He advised Sir Henry Young to introduce a Bill into the Legislative Council making gold, under certain conditions, a legal tender, so as to establish some kind of currency to tide over the existing deficiency of specie. The Royal instructions to the Lieutenant-Governor expressly forbade him to sanction any measure for altering the currency without the previous concurrence of the Sovereign. Sir Henry Young was fully aware of the gravity of the situation, but he had done nothing to meet the emergency; he recognised the pressure of the circumstances, but he hesitated; he was cautious, his own official position being in the balance. At length, however, after much deliberation, he gave way, and the Bullion Act was introduced into the Legislative Council, and passed into law in the course of a few hours. Under this Act, which was to remain in force for one year only, gold assayed and reduced to standard fineness became a legal tender at £3 11s. per oz. An assay office was established in order that the gold dust and nuggets might be reduced to standard ingots, and gold tokens were coined to take the place of sovereigns. These tokens were worth about 22s. or 23s. each. Of course this step, whilst it gave great and immediate public relief, was of enormous advantage to the banks. The gold, for which they paid £3 11s. and upwards per oz., fetched up to £3 17s. 9d. per oz. in England, and the tokens yielded a large profit per cent., because the gold was paid for in notes, and the tokens when paid into a customer's account were reckoned as being worth no more than £1 each. The difference in value was appropriated by the banks, who did apparently nothing for the gains they realised. There can be no doubt now that the discovery of the goldfields in the adjoining colonies and the passing of the Bullion Act made the turning point in the fortunes of South Australia. Mr. Tinline, at whose instance the Act was passed, was entertained afterwards at a public banquet, and presented with a service of plate, and the sum of £2,500 in recognition of the services he had rendered to the colony.

Towards the middle of 1852 the diggers began to return to South Australia. Trade generally revived and extended with a rapidity unparalleled in the colony. A sudden and immense demand for land sprang up, and at the Government land sales the auction room was always thronged with eager purchasers. All, or nearly all, the South Australian gold-

seekers were anxious to obtain land of their own, and many Victorian diggers were filled with the same desire. At this time the land laws in force in Victoria were so restrictive that small areas of land for agricultural purposes were unobtainable. Most of the country there was in the possession of pastoralists, who would neither surrender their holdings nor consent to any modifications of the conditions under which they held them. Those who wanted land were thus driven to South Australia, where it was obtainable in suitable areas and at a reasonable price. These circumstances laid the foundation of that agricultural development and prosperity for which this colony has ever since that time been distinguished.

In 1853, when the gold fever had somewhat abated, the navigation of the River Murray became a subject of absorbing interest and importance. Since Sturt had come down the stream in 1829, the value of that river, or rather its eventual importance to the internal trade of nearly one half of Australia, had not been thought of. In August, 1852, Captain Francis Cadell came down the river in a canvas boat, from about the junction of the Darling, with the object of examining it and ascertaining to what extent it was navigable for large craft. The result was most satisfactory; and, on the fact becoming known, a reward of £4,000 was offered, under certain conditions, for the first two steamers which should be navigated from Goolwa, near the sea entrance to the Murray, to the junction of that stream with the River Darling. A company called the River Murray Navigation Company was formed by Captain Cadell, with the assistance of Mr. William Younghusband, one of the leading merchants in the colony, and the *Lady Augusta* steamer was built and started on her trial voyage. Previous to this Mr. Wm. Randell had built a small steamer at Mannum, on the Murray, about eighty miles above Goolwa, and had steamed up the Murray and for some distance along the Darling, but his craft did not fulfil the conditions which would entitle him to the reward. The trip of the *Lady Augusta* was thoroughly successful. The Governor and his wife, with a large party of ladies and gentlemen, accompanied Captain Cadell. The *Lady Augusta* steamed as far as Swan Hill, on the Darling, a distance of about 1,500 miles. From this point Sir Henry Young wrote to the Secretary of State announcing the success of the expedition. The opening up of the Murray and the establishment of an intercolonial trade in the adjacent country did not realise the expectations which those who established it had anticipated. Many steamers were placed on the river, but the trade waned and finally dwindled down to unremunerative proportions. Nearly all the persons who were engaged in it at the outset lost heavily, and Captain Cadell was nearly ruined by it. South Australia did her utmost to secure the

trade by engaging in extensive operations to clear the river of obstructions, but the Victorian Government refused to assist or co-operate in this useful work. That colony was anxious to secure the trade for herself, and in a short time constructed a railway to Echuca to intercept the traffic and bring it into Melbourne. South Australia for years afterwards did not attempt to connect the Murray with her own seaboard, and when she did the golden opportunity had passed away. Sir Henry Young, it is true, caused a tramline to be constructed from Goolwa to Port Elliot, where it was expected that wool would be shipped for England. That port, however, was in every way unsuitable for shipping, being small and rocky, with bad anchorage, and dangerous to approach. The *Queen of Sheba*, a barque of 600 tons, did enter it, and she got out again, but she never renewed her visit. Several small craft were lost in the port itself, and after a short period of unsatisfactory experience the place was abandoned. This experiment cost the colony nearly £50,000. Since then a railway has been made westward, from Goolwa to Victor Harbor, in Encounter Bay, and a splendid breakwater constructed at the latter place from Granite Island. There is deep water there, perfect shelter from the prevailing winds, and the harbor is accessible in almost all weathers; yet the place is now but little used. Most of the wool which comes down the Murray is taken direct by rail from Morgan to Port Adelaide, thereby saving much time in shipment and considerable expense in loading and unloading.

In 1853 the population had grown so, that the inhabitants of the colony numbered 79,000 souls In the Imperial Act under which the colony was established it was provided that the inhabitants might frame a constitution for themselves as soon as they numbered 50,000. That limit had long been passed, and it was considered time to exercise the privilege promised to them. A Constitution Bill was passed by the Legislative Council, consisting of two chambers, one elected by the people and the second nominated by the Crown for life. The experience gained by the enactments of a single nominee chamber were fresh in the minds of the colonists, and the proceedings of the single chamber, composed of elected members and nominees in the proportion of two of the former to one of the latter, had not been altogether satisfactory. Property qualification was the basis of the representative element, officialism the principle of the nominee element. The admixture did not work well. The Governor was nearly always able to secure a majority in favor of his own projects, and he had the sole disposal of the land fund, independent of the Legislative body. The principle of a dual control, which had proved a failure when the colony was founded, was now revived in a more powerful and more objectionable form. As the colony advanced the land sales had

become large, and constituted the most fertile source of revenue. The Governor could deal with it at pleasure, subject always to responsibility to Downing-street. The people wanted self-government, and that they conceived they could not obtain as long as they were fettered either by the independence of the Governor in his disposal of the land fund, or by the independence of an upper chamber whose appointment vested in the Crown. The proposed new constitution did not satisfy the colonists. An agitation against it, in which the late Sir George Kingston took a leading part, was set on foot. Remonstrances and petitions were forwarded to the Secretary of State, who returned the Bill to the colony for further consideration, the Royal sanction having been withheld. No other occurrence of serious import to South Australia took place during the remainder of Sir Henry Young's term of office. He was promoted to be Governor of Tasmania, and left the colony at the end of 1854.

The administration of Governor Young has been dwelt upon at some length, because the period it embraces constitutes the most eventful epoch in the history of South Australia. From the time at which the reaction took place, when the settlers returned from the goldfields, its individuality became firmly established and its future successful development rendered certain. It was no longer a sluggish and struggling settlement; it had become a prosperous, well-ordered, and enterprising community, destined to undertake a leading part in legal reforms, in laying bare the secrets of the interior of the continent, and in introducing some of the most valuable adjuncts to civilization, which have largely and beneficially influenced the advancement of the whole of the Australian colonies.*

Under Sir Henry Young the land revenue increased from £32,935 in 1848 to £383,470 in 1854. The general revenue increased from £82,911 in 1848 to £595,356 in 1854, and commercial prosperity kept pace with these figures, which indicate the financial position of the colony. Yet much of the money was wasted. In 1848 the population amounted to 38,666 persons. Between that time and the end of 1854 no less than 93,140 persons entered the colony. The increase of births over deaths in the same period was 7,897. The population thus should have been increased by 101,037 souls. The population in 1849 amounted to 52,904. Without emigration the total should have been 153,941. However, in the same period 46,481 persons

* Amongst these may be mentioned the passing of Torrens' Real Property Act, now adopted in all the colonies; Stuart's explorations; the construction of the overland telegraph line across the continent; the making of a railway to the Victorian border: the telegraph line to the boundary of Western Australia. These were carried out by South Australia unaided.

left the colony; thus the population should have been 106,460 souls. At the end of 1854 it seems that the total population was no more than 92,545, so that there remained a balance against the colony of 13,915 souls. The fact was that immigration was carried on on a large and expensive scale by the South Australian Government. Many persons who were introduced at the public charge only used South Australia as a point from which they could reach the goldfields: the colony thus lost many of the people introduced at her cost. Victoria was by this means largely provided with population by the immigration fund of South Australia. This improvident system of dealing with the proceeds of land sales, and of bringing people to the colony, was not discontinued for many years. The actual loss to South Australia which arose from this cause has never been properly ascertained, but it must have been immense.

Sir Richard Graves MacDonnell, who succeeded Governor Young, did not arrive in the colony until June, 1855; the affairs of the province being administered in the interim by Mr. B. T. Finniss, who up to that time had been Colonial Secretary. Sir Richard MacDonnell was transferred from the government of the Island of St. Vincent. He had previously been Chief Justice of one of the settlements on the West Coast of Africa, and subsequently Governor of the same dependency.

In 1854 the Crimean war broke out, and the colonists were mostly occupied in devising means for their defence, and in organising a military force to resist attack. A strong regiment of foot was enrolled, with a small contingent of cavalry and three field batteries of artillery. The men were badly armed, even for those days. There was only a bare supply of old percussion muskets for the infantry, the armament of the cavalry was insufficient, and the artillery mustered only six light six-pounders, four nine-pounders, and two 24lb. howitzers. The men were good enough; they were strong and healthy, accustomed both to the country and climate, and equal to anything if properly equipped and disciplined. At that time there were no heavy guns to protect either the entrance to the Port or the shipping. However, the forces were not put to the test, and their organisation was scarcely more than fairly under way when the war came to an end. Governor MacDonnell found the colony in a prosperous state, with a large revenue and no pressing public difficulties to grapple with. There was the new constitution to be framed, discussed, and adopted. In order to ascertain the wishes of the colonists on this important subject, the Legislative Council was dissolved in 1855. The members returned were nearly all in favor of manhood suffrage and vote by ballot. This clear expression of the popular feeling considerably simplified the future deliberations of the Council.

When the session was opened after the general election, the Estimates framed by the Governor were forwarded to the Legislative Council. Instead of being discussed in the customary way, they were referred to a select committee. The reason for this unprecedented course was never made clear. The Governor's policy had not caused any dissatisfaction out of doors. Probably the members of the Council, in view of the framing of the new constitution, desired to gain some insight into the inner working of the Government establishments, which had hitherto been a sealed book to them. It was certain, however, that some of the leading members of the Council were determined to exercise to the fullest extent such powers as they possessed, and to limit those of the Governor as far as was possible. The constitution of the committee was singular. The Council was composed of sixteen elected members and eight nominees. The committee comprised six elected members and only one nominee. The Governor's policy was apparently at their mercy. The committee protracted its sittings for several months, and the public service was carried on by means of credit votes on the basis of the Estimates as laid before the Council, so that in the end no economy—if such a thing had been seriously contemplated—was secured. Reports were brought up by the committee from time to time, which were always more or less adverse to the Governor and his policy, and at length an address was sent to the Governor requesting him to send revised Estimates for the consideration of the Council. Sir Richard MacDonnell replied by message, which embodied a trenchant commentary on the acts of the select committee. It dealt with the whole case in such a masterly way as to turn the tide of public opinion completely against the proceedings of the committee. The Governor's views were subsequently supported by public meetings, which were held in various parts of the colony. The select committee achieved nothing. "The mass of work which the special committee had undertaken, which extended not only to the examination of the public accounts, but also to an inquiry into the financial position of the colony generally, for which purpose the managers of the banks were summoned to appear and were examined. To some questions they refused to reply, as the evidence sought was of too inquisitorial a nature. It may easily be inferred that the Government officers were dealt with in a similar spirit."*

Whilst the committee on the Estimates was sitting, the Constitution Act was introduced into the Council. There were conflicting elements of various kinds in the Legislature which it was difficult to harmonise or even to reconcile, so strange was the mixture of Liberalism and Conservatism, not alone in parties, but in individuals, so that the problem of framing a constitution for the colony was not easy of solution.

* Constitutional History of South Australia: Finniss. Adelaide, 1886.

Sir Richard MacDonnell's own views were, that a single chamber wholly elective would answer all the aspirations of the colonists.* These views were not considered by the Legislative Council, and the form of Constitution which was adopted was modelled somewhat on the lines of the Legislature in England. It was determined to establish a Parliament of two Houses—a Legislative Council and House of Assembly, but both of them elected. The former was chosen on the basis of a property qualification, for the electors but not for the elected. The House of Assembly was chosen by manhood suffrage; that is, that all adult males who were twenty-one years of age, and who were registered as electors, were entitled to vote. The qualification for the Legislative Council was a £50 freehold: a lease, registered, having three years to run; or a right of purchase of the annual value of £20; or the tenancy of a house of the clear annual value of £25. Any one was eligible as a member for the Upper House if he were a natural-born or naturalised subject of the Queen and thirty years of age, and had lived in the colony for three years. The Legislative Council consisted of eighteen members, elected for twelve years, and not subject to dissolution, but one-third of the members were to retire every third year, the order of retirement being determined by ballot after the first election had taken place. The members were elected by the whole province voting as one constituency. The House of Assemby consisted of thirty-six members, elected by electors on the basis of six months' registration and manhood suffrage. It was liable to dissolution by the Governor; failing such an event the members retained their seats for three years. They were elected for certain districts into which the colony was divided, and the mode of election in both cases was by ballot. The principle of the ballot was adopted at the instance of the late Mr. F. S. Dutton, who is the father of the ballot in Australia.

The Act was allowed by the Queen, and returned to the colony unaltered. It was passed in the last session of the old Legislative Council of 1855-6, and was proclaimed to come into force as soon as it was received from England. It contained one most important provision—that no alteration in the Constitution should become law unless it was passed by clear majorities of both Houses of Parliament. The judges were declared by the Act to be removable only on addresses from both Houses. Five Ministers were appointed, who were responsible to Parliament, and no act of the Governor could have any force unless countersigned by one of them. The Act materially altered the position of the Governor. He was no longer the mere representative of the Crown, responsible only to Her Majesty through the Secretary of State; he was bound to act on the advice of his responsible Ministers, although required by certain

* *Government Gazette*, August 17, 1855.

clauses in his instructions to reserve Bills dealing with particular questions for the signification of the Royal assent. Sir Richard MacDonnell had never been Governor of a colony with an independent constitution, and he was not easily reconciled to the altered position in which he found himself. His own view was that it was for him to prescribe the policy of the Ministry, instead of merely formally concurring in that which they might advise. Consequently there arose considerable friction between him and his first Ministers, who did not meet the new Parliament for some months after they had been sworn in. The situation was novel and complicated. The Governor had been compelled to form the first Ministry out of the only materials which were available, namely, three heads of departments who were members of the Executive Council—the Hon. B. T. Finniss, M.P., Chief Secretary; the Hon. R. D. Hanson, M.P., Attorney-General; the Hon. R. R. Torrens, M.P., Treasurer; with the Hon. Chas. Bonney, M.P., Commissioner of Crown Lands, and the Hon. Samuel Davenport, M.L.C., Commissioner of Public Works. This was a makeshift Ministry, for, with the exception of the official members, no one knew anything about what was contemplated for the future or what had gone on before. As a matter of fact the Ministers did not possess the Governor's confidence, and, as circumstances unfolded themselves, it became evident that they were not inclined to submit to the direction of the Governor, who did not desire to surrender the prerogative which he had been accustomed to use during the whole of his official career. The problem, however, was soon solved.

The new Ministry met the Parliament in April, 1857, and resigned in August, after existing for less than four months. It would not have survived even that brief period but for a conflict which had sprung up between the two branches of the Legislature on the question of Money Bills. The two Houses, according to the Constitution Act, claimed equal powers as conferred upon them (by clauses 1 and 40 of the Act of 1855-6), with regard to all Bills, with the exception that Money Bills must originate in the House of Assembly and only on the recommendation of the Governor. A Bill to levy and regulate certain tonnage dues was introduced into the Assembly, as required by the terms of the Constitution Act. It was passed in due course, and forwarded to the Legislative Council for concurrence. In its progress through that House important amendments were made in it, and, as altered, it was returned to the Assembly. That House refused to recognise the right of the Council to make alterations in any Money Bill, and a long and heated debate followed, which ended in the rejection of the measure. Later, an arrangement or compromise took place between the Houses, under which they consented in the future to make "suggestions" as to amendments in Money Bills for the considera-

tion of the House of Assembly, instead of making the amendments directly, and that arrangement has been in force for about thirty-five years. The debate which grew out of the privilege dispute kept the Ministry in office, but not substantially in power, and shortly after the settlement of the constitutional question a new Ministry came on the scene. The fact was that members of the Assembly were ambitious. There were no parties in that House, and just then none were possible. The Assembly did not want officials in power who had been under the direct control of the Governor and who might be influenced by him, but Ministers who would not act otherwise than with the confidence of a majority in the popular branch of the Legislature. The Ministry was out-voted, and new men assumed office: that Ministry lasted for nine days only. Another succeeded and survived just twenty-nine days. A third was called to the Governor's Councils, which held office for two years and nine months. With this new combination the reign of officialism ceased, and from that time until now the Government has been carried on in accordance with the constitutional principles which are established in the mother country, as far as they can be applied to local conditions.

During the tenure of office of the third responsible Ministry "The Real Property Act" was passed. It originated with Mr. R. R. Torrens (afterwards created K.C.M.G.) It changed the system of the transfer of real property, and simplified it, so that it was effected with almost as much ease as the transfer of ordinary chattels which pass from hand to hand. The details of this valuable enactment, which has been adopted in all of the Australian colonies and in New Zealand, will be given in another place. It need only be stated here that its introduction has conferred incalculable benefits upon almost every landholder in those dependencies of the British Crown in which the law has been brought into force.

The first railway connecting Adelaide with its chief port was completed and opened for traffic in Sir Richard MacDonnell's time, as well as the railway line from Adelaide to Gawler, which was the first step towards opening out the northern portions of the colony. The lines were projected and originated by Sir Henry Young, by whom a bonded debt in South Australia was first incurred.* To Sir Richard MacDonnell the establishment of the Adelaide and Suburban Waterworks is attributable.† The value of this undertaking has been so great that the water supply has been extended to all the suburbs, and in the country it has led to the construction of other hydraulic works which render many places entirely independent of the uncertain and intermittent rainfall. In this very dry country hydraulic works wanted only a beginning. The

* Act No. 18 of 1853 and Act No. 18 of 1854. † Act No. 28 of 1855-6.

colony is now reaping the advantage of the useful but limited scheme which was set on foot in 1855-6. Sir Richard MacDonnell remained in the colony up to the day of the arrival of his successor. He was a popular Governor, an excellent administrator, and a cultivated gentleman of large mental capacity. He was somewhat persistent in his own views, and not easily moved from fixed opinions. The colony progressed well during his governorship, but his personal plans for her advancement were greatly checked by the introduction of constitutional Government. Nevertheless, he has left behind him an excellent reputation. He certainly deserves to be regarded as the most able Governor of the transition stage of the colony's existence.

The progress of the province during Sir Richard MacDonnell's tenure of the governorship is indicated by the following figures:—The population had increased from 92,545 in 1854 (the year of his arrival) to 126,830 at the end of 1861 (a few months before his departure); the revenue in 1855 was £453,641, in 1861 it was £558,587; the expenditure was £689,696 in 1855, in 1861 it amounted to £482,951; the area of land under cultivation in 1853 (there are no returns for 1854-5) comprised 129,692 acres, in 1862 it had expanded to 326,160 acres; the number of sheep in the colony had increased from 1,768,724 in 1853 to 3,431,000 in 1862; the imports had decreased from 2,147,107 in 1854 to £1,820,656 in 1862; whilst in the same period the exports had grown from £1,322,822 to £2,145,796. The immigration at the public cost into the colony was very considerably restricted during the period to which the foregoing figures relate. From 17,258 souls in 1854, it was reduced to 2,685 in 1862. The emigrants who had been sent to the colony were to a great extent unsuitable to its requirements, especially the female portion, and Sir R. MacDonnell found his resources severely taxed in securing their distribution and absorption amongst the colonists in the rural districts.

CHAPTER VIII.

SIR DOMINICK DALY—HIS ARRIVAL—UNSATISFACTORY STATE OF THE SUPREME COURT —SIR CHARLES COOPER—HIS RETIREMENT—MR. JUSTICE BOOTHBY'S PROTEST AGAINST THE PENSION ACT—CLAIMS TO BE CHIEF JUSTICE—DIFFICULTIES CONSEQUENT UPON THE CLAIM—ACTS DECLARED INVALID—ADDRESSES TO THE CROWN TO REMOVE MR. JUSTICE BOOTHBY—ADDRESSES NOT COMPLIED WITH—FURTHER DIFFICULTIES IN THE SUPREME COURT—A FRESH APPLICATION TO THE SECRETARY OF STATE—LORD CARNARVON REFUSES TO COMPLY WITH THE REQUEST TO REMOVE THE JUDGE—SUGGESTS HIS REMOVAL IN TERMS OF AN IMPERIAL STATUTE—THAT SUGGESTION ADOPTED—ENQUIRY INTO THE JUDGE'S CONDUCT—HIS REMOVAL—VISIT OF H.R.H. THE DUKE OF EDINBURGH, K.G. —DEATH OF SIR DOMINICK DALY—PROGRESS OF THE COLONY—COLONEL HAMLEY—ALTERATION IN THE LAND LAWS—ARRIVAL OF SIR JAMES FERGUSSON —INAUGURATION OF THE OVERLAND TELEGRAPH LINE—PROGRESS OF THE COLONY—SIR A. MUSGRAVE—MINISTERIAL DISPUTES AND CHANGES—ARRIVAL OF SIR W. W. CAIRNS—HIS RESIGNATION—SIR W. F. D. JERVOIS APPOINTED GOVERNOR—SIR W. C. F. ROBINSON APPOINTED—THE EARL OF KINTORE.

SIR Dominick Daly entered upon his government on March 4th, 1862. He had passed through a long official career in Canada, and had been a member of one of the early responsible Ministries in that great dependency of the Crown, after its affairs had been settled by the late Earl of Durham. His Excellency was transferred from Prince Edward's Island, of which he was Governor, to South Australia, where he remained until the time of his death. The colony was in a flourishing condition when he was appointed, and it made great progress under his rule. The general policy of the province being determined by Ministers who were answerable to Parliament, there was not much scope for the exercise of a Governor's statesmanship in directing the course of political events. Sir Dominick Daly, however, possessed a clear perception of the duties which devolved upon him as head of the Executive, and was well versed in the principles and usages of constitutional government. Whilst he was never unmindful of the claims of the different Ministries which succeeded each other during his Governorship to his co-operation and support, he preserved his position and his dignity with all of them, and thus gained the confidence of the Parliament and the universal respect of the colonists.

Sir R. G. MacDonnell had left behind him a very troublesome matter, which had arisen in his time. It related to the conduct of business in the Supreme Court, and the course pursued by one of the judges of that tribunal. Mr. Benjamin Boothby, who had been Recorder of Pontefract and a revising barrister of one of the Ridings of Yorkshire, was appointed Second Judge in succession to Mr. Justice Crawford, who had died. The appointment had been made by letters patent under the great seal of the

province, by Sir H. E. F. Young, Lieutenant-Governor of South Australia, acting in pursuance of a warrant under the Royal Sign Manual directed to the Secretary of State for the Colonies, dated in February, 1853. Mr. Boothby acted as Second Judge of the Supreme Court until the Chief Justice, Sir Charles Cooper, went to England on leave. Mr. Justice Boothby was then appointed Acting Chief Justice during Sir Charles Cooper's absence from the colony. Previous to this the office of third judge of the Supreme Court had been created, to which Mr. Edward Castres Gwynne was appointed, in order to facilitate the administration of justice, on account of the divergences of opinion which had occurred between the Chief Justice and Mr. Justice Boothby on many of the questions of law which came before the Court. Sir Charles Cooper resigned his office at the end of 1861, and the Hon. R. D. Hanson, Attorney-General at the time, was appointed to the vacant position. The Parliament passed an Act conferring on Sir Charles Cooper a pension of £1,000 a year for life, in recognition of his long and distinguished services to the colony. Mr. Justice Boothby took exception to that Act, and he memorialised the Secretary of State for the Colonies in order to induce him to advise the Queen not to assent to it, on the ground that it made no provision for any other of the judges of the Supreme Court who might retire. The Duke of Newcastle, however, declined to act on Mr. Justice Boothby's suggestions, and intimated that if he desired to bring the matter before the Privy Council he must do so at his own cost.

The new Chief Justice was sworn in in due course. When he attended to take his seat upon the Bench, Mr. Justice Boothby raised the objection that Mr. Hanson's appointment was illegal and invalid, and that he had no right to the position of Chief Justice. This objection was overruled as untenable, and Mr. Hanson entered upon the functions of his office. Mr. Justice Boothby claimed to be entitled to the position of Chief Justice, and on various occasions asserted himself to be the only lawfully appointed judge of the Supreme Court of South Australia.

From this circumstance serious difficulties arose. Mr. Justice Boothby pronounced the Constitution Act to be invalid, and declared that all the laws which had been enacted under its provisions were also invalid. Many other enactments were also held by him to be invalid or inoperative, because they were either *ultra vires* or repugnant to the law of England. He considered that there was no Attorney-General, and he postponed the trial of prisoners who were arraigned before him because grand juries had been abolished, and indictments preferred by the Attorney-General had no legal force. The whole of the judicial system of the colony was thus disarranged. The delays which followed in determining suits that were brought in the Supreme Court, the constantly recurring differences

which arose between Mr. Justice Boothby, his colleagues on the Bench, and the Bar generally, created great public dissatisfaction and excitement. At length the Parliament took notice of the state of the Supreme Court, and addresses from both branches of the Legislature were passed and forwarded through the Governor to the Secretary of State, praying Her Majesty to remove Mr. Justice Boothby from office. The Duke of Newcastle, acting on the advice of the law officers of the Crown in England, decided not to comply with the prayer of the addresses, on the ground that, although Mr. Justice Boothby might have been wrong in many cases in his exposition of the law, in some of the positions taken up by him he had been right. In order to remove expressed doubts as to the state of the law in the colony, and to prevent the recurrence of similar difficulties in the future, validating Acts were passed by the Imperial Parliament, which, it was expected, would terminate the unsatisfactory condition of affairs which had deprived the Supreme Court of the province of much of its usefulness. This expectation was not realised. Mr. Justice Boothby's opinions underwent no change in fact, nor were they even modified in degree. His claims to be the sole judge of the Court were persistently re-asserted, and the altercations between himself and the other judges, as well as members of the Bar, were continually renewed. *

The proceedings of the Supreme Court and the impediments which were thrown in the way of the dispatch of the business of that tribunal formed the subject of a voluminous correspondence between the Governor, the Secretary of State, and Mr. Justice Boothby. It brought about no satisfactory result, and it forced itself anew upon the consideration of the Legislature. The Imperial Government was again urged to dismiss Mr. Boothby. The Earl of Carnarvon, who held the seals of the Colonial Office in succession to the Duke of Newcastle, after reconsidering the whole case *ab initio*, intimated to the Governor that the question of Mr. Justice Boothby's conduct was so intermixed with matters of law that, in his judgment, the Judicial Committee of the Privy Council was the proper tribunal whose advice should be sought for the purpose of determining the case. His Lordship concluded his despatch with the following words:—"If Mr. Boothby's conduct justified, and the interest of the colony required his prompt removal, it would have been far better to have adopted the responsibility of removing him under the Act of 22nd George III., Chap. 75, than to have transmitted an *ex parte* case to be dealt with by Her Majesty's Government at the other side of the world, with the evident probability that their first step would be to put Mr. Boothby on his defence, and the possibility of calculating the delays to which this

* Parliamentary Paper No. 22 of 1867.

necessary step might lead. I am inclined to think that even now your Government would act wisely by commencing proceedings under that Act: but they will do well to bear in mind that, in that case, their decision will be subject to appeal to the Privy Council, and that, with a view to that appeal, their charges must be adequate and precise, that the evidence of the fact must be sufficient, and that Mr. Boothby must be fully heard in his defence." *

In April, 1867, the Chief Justice and Mr. Justice Gwynne wrote to the Governor complaining of the offensive conduct of Mr. Justice Boothby towards *themselves, of the obstacles his demeanor threw in the way* of the equal administration of justice, and requesting His Excellency to adopt such remedial measures as it might lay in the power of the Government to apply. On the 26th May, 1866, the Attorney-General (the Hon. James Penn Boucaut, M.P., now second Judge of the Supreme Court) had forwarded a report to the Governor on the conduct of Mr. Justice Boothby, in which the whole of that judge's proceedings were reviewed at length. That report substantially formed the basis of the application to the Secretary of State which drew forth the Earl of Carnarvon's despatch quoted above. At length it was determined to proceed against Mr. Boothby in accordance with the Act of George III., Chap. 75, as had been suggested by Lord Carnarvon. The Governor and Executive Council met on the 24th June, 1867, to investigate the charges brought against the judge, which were as follows:—" 1. Conduct and language contumacious and disrespectful to the Court of Appeals, and obstructive to the said Court in the performance of its duties. 2. Perverse refusal to acknowledge the authority of Parliament and to administer the laws of the Province. 3. Expressions on the Bench disparaging and insulting the Legislature, the Government, and the institutions of the province, and language and behavior on the Bench calculated to bring the administration of justice into contempt. 4. Language on the Bench offensive and irritating to the other judges, and public denial of their authority. 5. Allowing private and personal feeling to interfere with the fair and impartial administration of justice." Mr. Justice Boothby attended the Council on the first day of its sittings, but he denied its authority and ignored its proceedings. After reading a paper containing a demand for certain documents, he left the chamber, and did not again appear before the Council. The Council sat for eight days and eventually found the charges proved. An order was then made by which Mr. Boothby was amoved from his office. Mr. Boothby had determined to appeal to the Queen in Council against the order, but his death, which occurred a few months after, brought the controversy to a close.

* Despatch of the Earl of Carnarvon to Governor Sir D. Daly, February 26th, 1867.

Towards the end of 1867, His Royal Highness the Duke of Edinburgh paid a State visit to South Australia. He was in command of H.M.S.S. *Galatea*. He landed on the 31st of October, and was received with the utmost enthusiasm. The city was illuminated, triumphal arches were built, balls, hunting parties, and other festivities were arranged, and the colony was *en fête* during the whole period of his stay. An open vote to cover the expenses of his reception was passed by Parliament, and everything was done to do honor to the distinguished visitor, and to make his stay agreeable to him and to his suite. He sailed for Victoria on the 21st November, apparently much gratified at the reception which had been accorded to him.

Early in 1868 Sir Dominick Daly, who had been in feeble health for several months, was attacked by a serious illness from which he never rallied, and he died on the 19th February. A public funeral was accorded to his remains, which were interred with military honors. No greater public demonstration than that which took place at the interment has been witnessed in the colony. Sir D. Daly was the only Roman Catholic Governor ever appointed to South Australia. He was not a brilliant man, but he possessed great tact and a singularly correct judgment; he was also a good administrator. He was pre-eminently just, and strictly impartial in the midst of the frequent Ministerial changes which occurred during his official career in South Australia. His manner was gentle and dignified, and without being demonstrative he was sincere. The Imperial authorities were so well satisfied with his administration that they had decided to re-appoint him as Governor for a second term of office. No Governor enjoyed a greater measure of popularity than Sir D. Daly, and none more worthily merited the excellent reputation which he left behind him. His decease was deeply lamented by every class in the province.

At the time of his arrival in 1862 the population numbered 135,329 souls, at the time of his decease it had increased to 172,680. The revenue which amounted to £548,709 in 1862 had grown to £716,295 in 1867. The expenditure in each of those years was £579,381 in the former, and £1,003,272 in the latter—the last, however, included loan moneys raised for public works; 494,511 acres were under cultivation in 1862, in 1867 the area had increased to 810,734 acres. The colony possessed 56,251 horses in the former year, and 74,228 in the latter. In the same years the number of sheep in the colony were 3,431,000, and 4,447,445, respectively. The cattle, however, had decreased from 258,342 to 122,200. The reason for this remarkable falling off is not ascertainable. The value of the import trade increased from £1,820,656 to £2,506,394, and that of the export trade from £2,145,796 to £3,164,622. The railway system, then in its early

infancy, showed only fifty-six miles in operation. In 1862 there were 1,026 miles of telegraph wires erected, communicating with thirty-five stations; in 1867 1,642 miles were erected, connecting sixty-five stations. The assets of the banks grew from £1,930,914 in 1862 to £3,234,209 in 1867, and their liabilities from £958,824 to £1,549,195.

On the decease of the Governor the administration of the Government devolved upon Lieutenant-Colonel F. G. Hamley, of the 50th Regiment, the senior military officer on active service in the colony, and he held office until the Right Hon. Sir James Fergusson, Bart., who was appointed to succeed Sir D. Daly, arrived in South Australia on February 15th, 1869. The new Governor had been a member of the English Parliament, and had filled the offices of Under Secretary of State for the Home Department, and Under Secretary of State for India. He had also held a commission in the Coldstream Guards, and had served in the Crimean war, and at the siege of Sebastopol, where he was wounded. During Colonel Hamley's administration considerable changes took place in the manner of disposing of the waste lands of the Crown. Before then land had been sold by auction, but this system had created a class of persons known as "land sharks," who attended all Government land sales, and bid for and bought all they could secure, for the purpose of obtaining larger prices from the people who required the land for *bonâ fide* settlement, whom they had been able to outbid. It also gave rise to extensive land monopolies, which kept farmers off the soil and thus restricted settlement. South Australia lost some of its population through the operation of those causes. At length a change was brought about by the new Land Act, or "Strangways' Act" as it was called. The land was sold on credit, the full sum bid for it being payable within four years from the date of the sale. The purchase-money bore interest at the rate of 5 per cent., the whole of which was payable in advance at the time the land was sold. Besides that, certain areas in different parts of the colony were proclaimed to be agricultural areas, in which land was open for selection by intending purchasers, and when two or more persons applied at the same time for the same block, the applications were decided on by lot. All the land that had been put up at auction and not sold was open for selection; but a definite value was assigned to each section, and, if not taken up, the price was gradually reduced until it became rated at £1 per acre.

The change did some good; but if the auction system had evils of its own, the new law generated new evils. The limit of selection was 640 acres. The land monopolists were equal to the occasion; they purchased lands in the names of persons who were under their control, and the residence clauses were evaded by the presence of dummies. Some of

the dummies got the better of their principals, by keeping the land bought in their names and complying with the terms of the Act. Those who prompted the dummying for their own purposes could neither sue nor prosecute, and in some cases lost their money and the land. Various amendments in the land Acts followed from time to time, until they developed into the land laws now in force, as will be noted in a subsequent part of this work.

Sir James Fergusson remained in South Australia till April, 1873, when he was transferred to the Government of New Zealand. He identified himself with all movements for the advancement of agriculture, and took a most substantial and generous part in useful popular movements. The great event of his administration, however, was the opening of the Overland Telegraph Line, constructed by South Australia across the continent to Port Darwin, which placed the Australian colonies in direct communication with Great Britain, and, consequently, with all the telegraphic systems of the civilised world. The completion of the Overland Telegraph Line was inaugurated by a public banquet in the Town Hall of Adelaide, and it was announced by the Governor on that occasion that the Chief Secretary (the Hon. Henry Ayers, M.L.C.) had been honored by the Queen by being created K.C.M.G., and Mr. C. Todd (Postmaster-General, under whose superintendence the work had been carried out, and who, in fact, had originated the scheme) was made C.M.G. The Hon. H. B. T. Strangways, the Minister who had introduced the Act authorising the work into Parliament, and by whose exertions it became law, received no recognition of his valuable and important services to the colony in promoting the enterprise. During Sir J. Fergusson's *régime* the Duke of Edinburgh visited the colony a second time, but not in his official capacity. His only public act was to lay the foundation-stone of the Sailors' Home at Port Adelaide in February, 1869.

The progress of the province between 1868 and the end of 1872 —shortly after which Sir R. D. Hanson, Chief Justice, administered the Government, pending the arrival of Sir James Fergusson's successor— may be traced by the following brief statistics :—The population increased from 176,298 to 192,223; the revenue declined from £716,004 to £697,442; the expenditure fell from £852,689 to £700,255; the quantity of land under cultivation in 1868 was 808,234 acres, in 1872 1,164,846 acres; the number of horses in the colony in the former year was 75,409, in the latter 82,215; the horned cattle numbered 123,213 in 1868, and 151,662 in 1872; the sheep depastured in 1868 were 4,987,024, and in 1872, 4,900,687; the combined value of the import and export trades was £5,057,810 in 1868, and £6,540,194 in 1872; in 1868, 1,642 miles of telegraph line had been erected connecting sixty-five stations,

in 1872 there were 3,731 miles, connecting eighty-six stations; the assets of the banks increased from £3,234,209 to £3,509,452, and their liabilities from £1,549,195 to £2,010,183.

Sir James Fergusson was an excellent administrator, a forcible speaker, and a far-seeing politician. It was he who originated the idea of a bold public works policy, the carrying out of which has helped very largely to develop the productiveness and increase the wealth and prosperity of the province. He was courteous in his demeanor, though at times somewhat austere. He did not succeed in acquiring such a wide-spread popularity as Sir D. Daly, but he was greatly respected as an upright conscientious gentleman and an exemplary man. Sir James Fergusson sustained a severe loss in the death of his wife, Lady Edith Fergusson, daughter of the Marquis of Dalhousie, who had been Governor-General of India. She expired on the 28th October, 1871. Her ladyship had gained the sincere admiration and gratitude of all classes by her widely extended but unostentatious charity, and the deep interest she manifested in the welfare of the poor and suffering of her own sex.

Mr. Anthony Musgrave, C.M.G., Lieutenant-Governor of Natal, succeeded Sir James Fergusson in the Governorship. He held office from June 9th, 1873 until March 24th, 1877. His *régime* was eventful as far as political conflicts were concerned, but uneventful as far as regarded his position as Governor. The political disturbances arose from the accession of Mr. J. P. Boucaut (now second Judge of the Supreme Court) to power. He proposed to borrow some £3,000,000 for public works, and to meet the interest upon the debt thus incurred by the imposition of fresh taxation, in the shape of Stamp taxes and Probate and Succession Duties. His proposals were welcomed and easily carried in the House of Assembly, but the Legislative Council rejected them. Without the additional taxation he refused to borrow. The Parliament was prorogued and met again in a very few weeks, when the taxation proposals were again carried in the Assembly and again rejected by the Legislative Council; Mr. Boucaut thereupon declined to proceed with his public works projects. The Parliament was again prorogued. Before it met again Sir R. D. Hanson, the Chief Justice, died suddenly, and the Hon. S. J. Way, Attorney-General, was appointed in his place. This circumstance necessitated a re-arrangement of the Ministry, from which some of its members seceded, and when the Parliament re-assembled the Hon. Mr. Boucaut's Ministry was removed by a no-confidence vote. The Hon. John Colton (now Sir John Colton, K.C.M.G.) formed a new Cabinet, which adopted the whole of the retiring Ministers' policy except as to taxation. The sum of £3,000,000 was raised on loan, and various new railways were

projected, all of which have since been constructed. The Probate and Succession Duties were adopted and became law, but the Stamp Act which had been contemplated was not proceeded with. During all these political changes the Governor was necessarily inactive, except as to the exercise of his ordinary functions as chief of the Executive. He was essentially of retiring and studious habits, having no taste for the turmoils of party conflict, and he did not court publicity to any remarkable extent. He occupied a kind of negative position with regard to the colonists. He was neither popular nor unpopular, but he left behind him on his retirement the reputation of being a well-meaning, undemonstrative, and eminently efficient Governor. Mr. Musgrave was made a K.C.M.G. shortly after his arrival in the colony. His services in other colonies had certainly entitled him to this distinction before he was appointed to rule over a province which ranks in the Colonial Office as a first class colony. Sir A. Musgrave was promoted to the Governorship of Jamaica, and he left South Australia for his new seat of Government on January 23rd, 1877. Pending the arrival of his successor, Sir W. W. Cairns, K.C.M.G., who was transferred from Queensland, His Honor the Chief Justice, Mr. S. J. Way, filled the office of Administrator. This was from January 29th, 1877, till March 24th, in the same year.

From 1872 to 1876, inclusive, the position of the province will be understood from the subjoined figures. The population had grown from 192,223 to 225,677. The revenue increased from £697,422 to £1,320,205. The expenditure had augmented from £700,255 to £1,323,337. The quantity of land brought into cultivation had extended from 1,164,846 acres to 1,514,916 acres. The horse stock had multiplied from 82,215 head to 106,903, and horned cattle from 151,662 to 219,441. The increase in the number of sheep depastured in the colony was from 4,900,687 to 6,133,291. The total value of the import and export trades (which was £6,540,194 in 1872) amounted to £9,392,353 in 1876. The tonnage of shipping inwards and outwards sprang up from 347,360 tons to 732,330. In 1872, 202 miles of railway were open and at work, and in 1876, 328 miles; 3,731 miles of telegraph line connecting 86 stations were in operation in 1872, and in 1876, 4,486 miles of line connecting 112 stations. The assets of the banks had accumulated from £3,509,452 to £6,846,127, and the liabilities had grown from £2,010,183 to £3,826,354.

Sir William Wellington Cairns was sworn in as Administrator of the Government, in the customary way, when he landed in South Australia, and was received with the cordiality and respect with which all the Governors have without exception been greeted. His career, however, was very brief. The only public functions performed by him were the

opening of the Victoria Bridge, on April 24th, 1877, and being present at the inauguration of the Senate of the Adelaide University and the enrolment of its members. He resigned his office on May 17th, after holding it for less than two months, so that the colonists had no opportunity of judging either of his personal character or of his official capabilities. The Chief Justice again became Administrator, and remained so for nearly five months. In July, 1877, the overland telegraph line to Western Australia was completed as far as Eucla, a small port about 150 miles west of the head of the Great Australian Bight.

Sir W. D. F. Jervois, K.C.M.G., C.B., was the next Governor. He held the rank of Colonel in the Royal Engineers, and was Governor of the Straits Settlements when he was appointed to South Australia.* He was a most distinguished officer, and was regarded as one of the greatest of European authorities on fortifications His varied services at the Cape, in India, and his professional career in England and elsewhere, had caused his advancement step by step until he came to South Australia as Governor. He arrived in H.M.S. *Sapphire* on the 2nd of October, 1877, and remained in office till the 17th November, 1882. He was absent from the colony for six months in 1878, during which time the Chief Justice acted as his *locum tenens*. About a month after Sir William Jervois' first arrival the Overland Telegraph Line from Adelaide to Perth, connecting West Australia with the telegraph systems of the other colonies and of the world, was completed. It follows the coastline, for the most part along Eyre's track, and joins the South Australian system at Port Augusta. In the following year, on July 30th, Sir William Jervois laid the foundation-stone of the Adelaide University, and on that occasion delivered an address which attracted much attention and was the subject of much laudatory comment. On the 26th of November the colony suffered a great loss in the death of Sir George Kingston, who died on board the P. & O. Company's steamship *Malwa* on a voyage to Bombay, which place he was desirous of visiting for the benefit of his health. He had been Speaker of the House of Assembly for many years, but had just vacated that office in consequence of a dissolution of Parliament. He had represented the district of the Burra for many years, and had always taken a leading part in the most important political movements of his time. His exertions had an important effect in procuring the rejection of the first Constitution Bill by the Secretary of State, and he zealously advocated the election of members for the Legislative Council, instead of their being nominated by the Crown, as was provided in the rejected Constitution Bill.

* Now Lieut. General, G.C.M.G., C.B.

Prince Albert Victor (the late Duke of Clarence and Avondale) with his brother (Prince George of Wales) visited the colony on June 12th, 1881. Their visit was unofficial. They were well received, and during their brief stay of less than a week saw as much of the colony as Sir William Jervois could enable them to do. The defences of the colony were much improved during the Governorship of Sir Wm. Jervois. Two first-class fortresses, designed by the Governor himself, were erected for the defence of Port Adelaide, which until then had been unprotected, and the gunboat *Protector*, one of the most efficient of its class, was built for the colony. In November, 1882, Sir W. Jervois was appointed Governor of New Zealand. He was entertained at a public banquet on the 5th January, 1882, just prior to his departure, and he left the colony amidst general regret; for he was exceedingly popular, and had shown himself to be a prudent administrator and a Governor who took the deepest interest in the welfare of the colony at large.

The following extracts from official statistics denote the general progress of the province from 1877 to 1882 inclusive. The population increased from 236,864 to 293,509. The revenue advanced from £1,441,401 to £2,087,076; and the expenditure from £1,443,463 to £2,146,599. The cultivated area extended from 1,828,115 acres to 2,370,980 acres. The progress of pastoral operations showed an increase in horse stock from 110,684 to 162,400; of horned cattle from 230,679 to 306,046, and of sheep from 6,098,359 to 6,388,366. The value of the imports in 1877 amounted to £4,625,511, and of the exports £6,707,788: total, £11,333,299. The tonnage of shipping inwards and outwards grew from 677,776 tons to 1,337,218 tons. In 1877 there were 328 miles of railway open and in operation; in 1882, 945 miles; 4,061 miles of telegraph line were erected and at work, and in 1882 5,093 miles, connecting 172 stations. The assets of the banks in the colony were £6,346,127 in 1877, and in 1882 £10,812,500; and the liabilities for the same years £4,044,041 and £5,776,668 respectively.

Sir William Robinson came to the colony as successor to Lieutenant-General Sir W. F. D. Jervois in February, 1883, and he remained in office for a little over six years, when he was transferred to Victoria to act as Governor during the absence of Sir Henry Loch. The most noteworthy occurrences of his administration were the celebration of Her Majesty's Jubilee and the opening of the South Australian Exhibition in commemoration of that auspicious event. The holding of that Exhibition must be attributed in a great degree to the exertions of Mr. E. T. Smith, who was mayor of Adelaide, on whom the honor of K.C.M.G. was subsequently conferred by Her Majesty in recognition of the great

public services he had rendered to the colony. The foundation-stone of the Exhibition Building was laid by Sir W. Jervois on the 21st June, 1886, and the Exhibition itself was opened on the 21st June in the following year by Sir William Robinson. The Exhibition was a perfect success, and the receipts completely covered all the expenses that had been incurred in promoting and carrying out the undertaking, so that the gentlemen who had guaranteed the cost in the first instance were not called upon to contribute anything. It was kept open for six months, during which it was visited by 789,672 persons. The total cost of the Exhibition was £68,702, including the expense of erecting a permanent building (£33,898), which reverted to the Government at its close, the upper portion of which is now used as the public Art Gallery. Governor Robinson left South Australia for Melbourne early in March, 1889, and was succeeded by the Right Hon. the Earl of Kintore, G.C.M.G., the present Governor, who now administers the affairs of the province. The Chief Justice administered the Government in the intervals between the departures of Sir William Jervois and Sir William Robinson and the arrival of their successors, and in January, 1891, he received a commission as Lieutenant-Governor of the colony from Her Majesty the Queen.

The figures which follow hereunder indicate the condition of the colony from the years 1883-4 to 1890-1, both inclusive. In the former year the population, as estimated, was 304,515, and at the close of the latter, also as estimated, 329,811. These figures have been rectified by the census which was taken in 1891. The revenue in 1883-4 was £2,060,140, in 1890 £2,732,222. The expenditure in each of the years was, in 1883, £2,330,079, and in 1891 £2,582,640. The area of land under cultivation in 1883-4 was 2,754,560, and in 1890-1, 2,649,098 acres. The number of horses in the former time totalled 164,360, in the latter 187,686. The number of cattle in the colony was 319,620 head in 1883-4 and 359,938 in 1890-1. The pastoralists owned in the colony 6,677,067 sheep at the beginning of the period mentioned and at its close 7,004,642. The value of the imports in the respective years noted was £6,310,055 in 1883 and £8,262,673 in 1890. The exports in 1883 amounted to £4,883,461 and in 1890 to £8,827,378. The tonnage of shipping, inwards and outwards, extended from 787,554 tons to 1,115,309 tons. The number of miles of railway at work in 1883 was 972, in 1890 1,611 (since increased to 1,666), and the net revenue on the capital invested was 2·56 per cent. in 1883 and 5·03 in 1890. In 1883 the telegraph lines extended to 5,278 miles, serving 179 stations, and in 1890 to 5,624, serving 218 stations. The liabilities of the banks in 1883 were £5,306,595, in 1890 they amounted to £7,759,926; on the other hand the assets amounted to £11,868,025 in the former year and to £11,489,843 in the latter.

In the year 1885 the Imperial Parliament passed an Act (48 and 49 Vict., cap. 60) to constitute a Federal Council of the Australian Colonies, "called the Federal Council of Australia, for the purpose of dealing with such matters of common Australasian interest, in respect of which united action is desirable, as can be dealt with without unduly interfering with the internal affairs of the several colonies by their respective Legislatures." Each colony was to be represented at the Council by two members, except in the case of Crown colonies, which were allowed one representative only. It was required to meet once in every two years. Under this Act the Council first met in 1886. South Australia was not represented on that occasion. The South Australian Parliament adopted the Federal Act in 1888 for a period of two years, and the Hon. Thomas Playford, M.P., and the Hon. C. C. Kingston, M.P., were nominated by the Governor as the first members to represent South Australia. When the Council met in Hobart (Tasmania), in 1889, the Hon. T. Playford was elected president. In that session no Act was passed which affected South Australia. In 1890, Dr. J. A. Cockburn, M.P., and the Hon. T. Playford were elected by the members of the Legislative Council and House of Assembly—not, however, in Parliament assembled—to represent the province at the next meeting of the Council. The South Australian representatives did not attend the session of 1890, as the Federal Act has not been renewed by the local Parliament, although a measure for that purpose was prepared in 1890 and another in 1892. In 1890 a conference of representatives of the different Australian colonies was held in Melbourne. Its object was to discuss the subject of the federation of the colonies on a basis broader and more complete than that which could be established under the provisions of the existing Federal Council Act. Its deliberations resulted in a proposition, which was submitted to the different Australian Legislatures, to hold a convention in Sydney, composed of representatives of all the Australian colonies, to consider the question of federation, and to frame a constitution under which they might unite for the purposes of Federal Government. This proposition was brought before the South Australian Parliament, and agreed to. The convention met in March, 1891, and closed its sittings in April, in the same year, having agreed upon a comprehensive measure, which it was arranged should be submitted to the different colonial Legislatures for their approval, with or without amendment, at their pleasure. The members who represented South Australia were the Hon. T. Playford, M.P.; Hon. Sir John Cox Bray, K.C.M.G., M.P.; Hon. J. A. Cockburn, M.D., Lond., M.P.; Hon. Sir John W. Downer, K.C.M.G., Q.C., M.P.; Hon. C. C. Kingston, Q.C., M.P.; Hon. R. C. Baker, C.M.G., M.L.C.;

Hon. J. H. Gordon, M.L.C. The Draft Federal Constitution Bill was laid before the colonial Legislatures in due course. It has been partially considered by some of them, but from various causes it has not yet been adopted by any. The subject remains in abeyance for the present, though there is no doubt that it will engage the serious attention of the different colonial Parliaments before long.

Some of the South Australian Governors identified themselves greatly with the exploration of the untrodden interior, and Sir R. MacDonnell was anxious to cross the continent. He certainly would have made the attempt when he was at Stuart's Springs, in the latter part of 1859, but for the remonstrances of some of those who accompanied him. The Earl of Kintore, in 1891, made a journey by sea to Port Darwin, in the Northern Territory, and returned to Adelaide along the telegraph line. He is the only Governor who has crossed the continent from sea to sea. The results of his journey were embodied in a despatch to the Secretary of State, which was very favorably commented on when it was published in England.

CHAPTER IX.

Early Explorations—Cock and Finlayson—Strangways and Hutchinson—Examine the Murray Mouth—Eyre Explores the Flinders Range—Discovers the Broughton and the Rocky Rivers—Mount Remarkable—Mount Arden—Lake Torrens-Explores to the West of Port Lincoln—Returns to Mount Arden—Discovers the Gawler Ranges—Waterless Country—Governor Gawler—Explores from the North-West Bend to Flinders Range—Party Falls Short of Water—Returns to Camp—Mr. Bryan becomes Exhausted—Remains behind—Is Lost in the Scrub—Search for him Unsuccessful—Eyre's Expedition—Explores to the North—Crystal Brook—Mount Eyre—Bad Country—Scarcity of Water—Lake Torrens—Reaches Mount Deception—Dry Watercourses—Proceeds to Mount Termination—Flooded Plains—No Grass and no Water—The Mundy and the Frome—Mount Hopeless—Returns to Mount Arden—Determines to Penetrate to the West—Port Lincoln—Scott's Journey thence in a Whaleboat to Port Adelaide—Sets out again from Streaky Bay—The Head of the Great Australian Bight—Threatened by Natives—Horses Die of Exhaustion—Reduces his Party—Succeeds in Rounding the Great Bight—Sterile Country—Still further Reduces the Party—Pressed by the Governor to Return—He Determines to Press on—Sufferings of the Party—Shortness of Provisions—Baxter Wishes to Return—Eyre still Refuses—Sufferings of the Horses—Desertion of Two of the Blacks-They Return—Murder of Baxter—Want of Water and Grass—Food Exhausted—Falls in with a French Whaler—Receives Relief-Sets Forward Again—Further Difficulties—Reaches King George's Sound.

When the first settlers landed in South Australia nothing was known of the vast territory which had been constituted a province of the British Empire, beyond that which had been made known by Captain Sturt in the narrative of his voyage down the Murray to Lake Alexandrina, and by Mr. Kent, who had ascended Mount Lofty with Captain Barker, and had accompanied that officer to the Murray Mouth, where he was murdered by the natives. It was of the utmost importance that the nature of the interior should be ascertained with as little delay as was possible, although, from its great extent, a full knowledge of the country could not be obtained without the expenditure of much time and money. Various small expeditions were undertaken by private persons from time to time, to explore north, east, and south of Adelaide, so that in the course of two or three years after the colony had been founded the country for a considerable distance round the capital was tolerably well known. Of these expeditions there are few records. The first persons who crossed the Mount Lofty ranges were Messrs. Cock and Finlayson,

in 1837. They penetrated as far as Lake Alexandrina, and discovered Hindmarsh Island and the Hindmarsh and the Inman Rivers in Encounter Bay. Later in the same year, Messrs. Strangways and Hutchinson were sent out to ascertain whether there was any outlet from the Murray besides that seen by Sturt and Barker. They succeeded in taking a dray, drawn by two oxen only, along the whole distance from Adelaide to Encounter Bay. At the southern extremity of the Mount Lofty ranges the hills were so rugged and precipitous and the ravines so deep that they were sometimes compelled to unload the dray and carry over the provisions themselves, and then get the bullocks across in the best way they could. On reaching Encounter Bay they procured a whaleboat, and sailed to the Murray Mouth. Their examination proved that it was the only opening of that river into the sea. Whilst there they discovered the Coorong, which has been described in a former part of this work. Messrs. Hawdon and Gardiner, who brought cattle overland from Sydney, made known the nature of the country lying to the north-east of the ranges. Mr. E. J. Eyre also brought cattle overland from Port Philip, and added considerably to the stock of knowledge of the colony. Mr. C. Bonney travelled to Adelaide from Portland Bay with a herd of cattle. His journey showed that there was available land between Portland and the Murray. A little to the north of Bonney's track a fertile tract of country was found soon after, which is now known as the South-Eastern District of South Australia. The country to the north of Adelaide had been carefully explored for about a hundred miles, and the Light, the Wakefield, and the Gilbert rivers were discovered.

The present sketch of the explorations in South Australia must necessarily be confined to outlines of those which were the most important. A full account of all that has been done for the purpose of opening up of the interior would fill several volumes. In May, 1839, Mr. Eyre set out to explore the Flinders Ranges beyond Mount Arden to the north of the head of Spencer's Gulf, which he expected would stretch across the continent. For the first hundred miles he found them to be a chain of fertile hills and plains, well grassed and of rich soil. Those hills were lightly timbered and easy to travel over. He also discovered the Hutt River, the Hill River, and the Broughton. Here the country became poorer, and near the last-named stream it was more abrupt and broken. After leaving the Broughton, and striking out on a line a little west of north, barren country was found, and then a hill, called Spring Hill, which he ascended. To the north-west there were extensive plains, and in the west the waters of Spencer's Gulf could be seen. Crossing the plains, he came to Campbell's range. Beyond the creek which flowed through the plains, Eyre came into a small gorge in the range, through

which a pretty stream flowed, which he named the Rocky River. It soon lost itself in a sandy channel. From this point a conspicuous peaked hill, isolated from the neighboring hills, was visible, which he named Mount Remarkable. It is over 3,000ft. high. The country round the Rocky river was open, but of inferior description. In moving up the gulf along the range, the hills rose from the plains like high rocky barren walls. The rocks were abrupt escarpments of quartzite, or steep declivities of clay slate. There was little or no vegetation on any of them. Seen from a rise a few miles north of Mount Arden, the land to the north appeared to be low, rocky, and sandy, with only a few stunted bushes growing there. To the east high barren ranges, extending north as far as sight could follow them, became visible. To the west and north-west a sheet of water, which was named Lake Torrens, was observed. Eyre did not attempt to go further, and he returned to Adelaide.

In the same year Eyre led another expedition to examine the coast to the west of Port Lincoln. He penetrated as far as Streaky Bay through a dense scrub, which commenced a few miles to the west of the settlement at Port Lincoln. The country then improved. It opened into low grassy lightly-timbered ridges of limestone, with here and there springs and lakes of fresh water. These ridges extended about twelve miles inland, and then a low level waste of barren scrubby land commenced. As he proceeded, the range receded from the sea and left scrub on both sides, interrupted near the beach by large salt lakes, one of which had been seen by Flinders, who had mistaken it for an inlet of the sea. When Eyre reached Streaky Bay he decided to cross the country to Mount Arden. This course enabled him to pass along the north part of the Port Lincoln peninsula and gain a good idea of the character of the inland country. The first day's journey was through scrub and open plains, with grass, but no water, and a bad soil. The second day he reached a high granite ridge with grass and water on its flanks, from which a range of hills named the Gawler Range was discerned. From this ridge the route lay through a desert, scrubby, and stony country, abounding with spinifex growing on the sand ridges, with occasionally level limestone flats. Another day's travel brought him under the Gawler Ranges. Those hills were composed of granite, with coarse vegetation, but there was no water except in a few surface pools. Along the foot of the range patches of good grass land existed, but still no water. From this point he travelled due east, and he found a little surface water but no grass. One rise was passed named Baxter's Range. With this exception and the occurrence of a few salt lakes, nothing broke the scrub until the head of Spencer's Gulf was reached. In most seasons

a journey over the same country would be impracticable. The only water to be found is in small quantities, in holes in the rocks left by the rains, so that, unless immediately after wet weather, the country cannot be penetrated.

In the same year Governor Gawler set out to explore from the North-West Bend of the Murray towards the east side of the Flinders Range. What little was known of that part of the country was unfavorable; it was a dense scrub as far as it had been penetrated. The Governor hoped that some better country might be found if it were carefully explored. He left in November, accompanied by Captain Sturt, Mr. Inman, Mr. Bryan, and two others. The first day's journey was over sandy plains covered with clumps of stunted trees with tall grass, a little saltbush, but no water. On the second day the small quantity of water the party carried with them was exhausted, and it became necessary to obtain a further supply. The Governor and Mr. Bryan turned back to the camp to obtain assistance for the rest, because their horses were knocked up and scarcely able to travel. After a journey of about twelve miles Mr. Bryan was too fatigued to proceed further. Colonel Gawler most unwillingly left him, to go on alone for help. He reached the camp and returned with water, but Bryan was not to be found. A search for him was made, but it was fruitless. His coat was picked up and a paper, on which he had written that he was much exhausted and had gone to the south-east. No traces of him were ever found, though the search for him was continued until all the provisions of the party were expended.

The most terrible, and certainly the most unprofitable, of all the exploring expeditions which have been undertaken in South Australia was projected in 1840. Mr. Eyre, who had had so much experience in examining the country to the north of Port Augusta and to the west of Port Lincoln, set out on a new expedition. A scheme had been set on foot for the discovery of a route between South Australia and King George's Sound. Eyre did not consider the scheme practicable, but he undertook to lead an expedition to the north, and offered to bear one-third of the expense. Governor Gawler accepted his proposal, and the party was duly equipped. It consisted of Mr. Eyre, Mr. E. B. Scott (lately Superintendent of the Yatala Labor Prison), four men, and two native boys. They took with them thirteen horses, forty sheep, and stores for three months. A further supply was to be sent to them by sea to the head of Spencer's Gulf. The party set out on the 18th June. Eyre's plan was to follow up the Flinders Range until it led him to the centre of the continent. He followed his former track till the 27th, to a more westerly portion of the Rocky river, and on emerging from the hills he came upon a stream of water which he named Crystal Brook.

On the 3rd July they reached Mount Brown, and camped there, waiting for the supply vessel *Waterwitch*. She arrived two days afterwards, and whilst the stores were being landed Eyre started with one of the boys for a preliminary examination beyond Mount Eyre. They reached that place on the 7th of July, and then struck to the north-west to examine Lake Torrens. For the first day and a half they crossed immense plains, and then heavy sand ridges with level lands between. There was no watercourse along the whole extent; all they had to supply their wants was the remains of a chance shower, which had left a few puddles here and there. Eyre found it completely surrounded by a steep sandy ridge, exactly like the dunes which are seen on the sea shore. The bed of the lake was dry, and coated over with a crust of salt. It yielded to the foot, but as he trod on it a soft mud oozed out. He tried to walk upon it, but was obliged to return. He was unable to ascertain whether there was fresh water in the bed or not; but he knew there was none to be found for at least five miles from the spot at which he rested. To the north, as far as the eye could see, there was one immense tract of sterile country. Eyre then determined to move northwards. He could not cross the lake, for there was nothing for the men or horses on its banks. He was thus forced to follow the range as far as he could. He went forward to Mount Deception, which was the furthest point visible to the north-west. In crossing the plains he had to depend upon the water in the puddles. There were watercourses, but they were encrusted with salt, and where the teatree grew the soil was saline and the water too brackish for use. Still he pushed on to the northward, through miserable country, until he came to a spring 115 miles north of Mount Arden. He returned to the depôt after being away fifteen days. He then sent back the *Waterwitch* and moved his party to the depôt pool. From thence he went forward once more to Mount Termination, over barren stony plains and dry watercourses. At length he found some pools in a watercourse, to which he moved his party. This was named the Scott. As the party advanced, the hills trended eastward, and then ceased altogether in latitude 29° 30″ S. Plains now succeeded, which had recently been flooded, but there was neither grass nor water upon them. Eyre tried to force his way through by moving north-west, but he was blocked by a salt marsh. Again and again he endeavored to go forward, each time striking more to the eastward; here he was stopped by Lake Torrens, as he then believed. From Mount Serle he obtained a view of the lake to the eastward. Two watercourses were seen by him (the Mundy and the Frome), but they seldom contained water. The latter flowed from the south side of Mount Searle, and at twenty-three miles it became as salt as the sea. He then sent his party back to Mount Arden whilst he

continued his examination of the country. After riding for thirty-five miles through a dreadful tract, he came to a prominent hill called Mount Hopeless, where he obtained a view which dispelled all his hopes, and he returned reluctantly to Mount Arden.

Finding that he could not penetrate the country to the north, he now determined to travel west from Port Lincoln. After a short rest at a place not very far from the head of the gulf, Eyre sent two men and one native boy with the drays, the sheep, and seven horses to Streaky Bay, over his last year's tracks, whilst he and Mr. Scott with the rest of the party made for Port Lincoln in order to obtain supplies. When he reached that place nothing could be got; he therefore hired a small boat and sent Mr. Scott to Adelaide to seek assistance. The voyage, a most hazardous one at any season of the year, was successfully performed, and Mr. Scott returned in the *Waterwitch*, bringing abundance of stores and provisions. A cutter was sent round to Streaky Bay, where the party were reunited on November 3rd. The craft was then sent on to Fowler's Bay, and her captain directed to land water at Smoky Bay. With this the party reached Fowler's Bay in safety. The cutter was sent back to Denial Bay, with orders to return on the 11th December. Eyre then went on; he struggled through the sand for three days, but was compelled to return for water. He now sent a supply forward in the dray, and at a distance of twenty-seven miles he sank a well and struck water. He pushed on for twenty-two miles further, but no water could be found, and the horses were knocked up. Here the party was surrounded by natives, whose behavior troubled them greatly. They could proceed no further. The only thing to be done was to bury the stores and drive the horses before them as quickly as possible back to water, but this could not be done whilst the natives hovered around them. At length they moved away. The stores were hurriedly buried, and fourteen horses driven on as fast as they could go. Three of them fell down and died before assistance could be brought to them. Eyre had spent twenty-four days in trying to round the head of the Bight. Failing in this, he returned to the depôt camp, but the men and horses were so exhausted that a long rest was indispensable. The furthest point reached was twelve miles from the head of the Bight, and the country traversed was of the very worst kind. Eyre now decided on reducing his party. The loss of four horses rendered it impossible to take on provisions for all, and the number of the party rendered the difficulty of getting sufficient water more formidable. He therefore sent back all but the overseer, one man, Mr. Scott, and two native boys. He sent despatches to the Governor asking for more assistance in the shape of provisions and forage, and he determined to remain for six weeks at the depôt. As

soon as the cutter left he made a fresh attempt to get round the Bight. this time with success, and he reached a point fifty miles beyond it. The country was all sand ridges and scrub, with no water for at least sixty miles. It was impracticable for drays, and apparently so for horses. At the Head of the Bight he fell in with some natives, who led him to grass and water, but he gathered from them that there was no more for at least 100 miles, near the first break in the cliffs seen by Flinders. The country at the top of the cliffs was level. The upper crust was composed of limestone overlying a concrete of sand, small pebbles, and shells. Back from the sea the country was flat and open, with low prickly bushes, salsolaceous plants, and patches of gum scrub and grassy openings.

The horses had suffered severely. It was only by burying water that the men had been able to travel so far. Eyre now resolved to reduce the party still further, and he sent back Mr. Scott and another of his men, keeping only Baxter, the overseer, and three native boys. The third, named Wylie, was a native of King George's Sound, whom Eyre had brought to Adelaide a few months before. On the 31st January, 1841, the cutter returned to Adelaide. An attempt was now made to explore north of Fowler's Bay, but the country was penetrated only for about twenty miles. On February 23rd, the reduced party prepared for a fresh start. They buried all their surplus baggage, and as they were about to move away a cutter hove in sight. Mr. Scott landed from it, and brought letters from the Governor, urging Eyre to return. Eyre would not accede to the request, for he was determined to push forward. He moved onwards on the same day, and on March 3rd reached the head of the Bight. The party were almost blinded by the sand as they travelled, and were much tormented by the visitation of huge flies, which bit them severely. The water at which they camped was the last of which they had knowledge. Eyre set out again on March 7th with one of the native boys and the sheep, travelling very slowly; the overseer was directed to follow with the pack horses. He journeyed on for several days through bad country, destitute of grass and water. Eventually he came to a native well, which, to his deep disappointment, was quite dry. At noon on the third day he was 110 miles distant from the last water, and the sheep could go no further. He left them behind, and also a note to the overseer to hurry on with the horses whilst he pressed forward in search of water. He occasionally came across tracks which looked like native paths, but they led to nothing. After much suffering, Eyre and the boy reached the edge of the cliffs on November 11th. No water was found there. He now pushed on for seven miles, when he came to a break in the rocks with sand drift in

between, in which, by digging, he obtained water in abundance. Eyre at once turned back to meet the sheep and horses. It had been necessary to lighten the loads of the latter, and the stores they carried were buried. Rest and plenty of water soon brought them round again. The journey through the desert took five days, during which Eyre had advanced 135 miles.

After a rest of six days Eyre moved onward once more. He tried the beach, but that was too sandy, so that he had to return to the ridges on the shore. Two days travelling brought him to a grassy patch, but water was not discoverable. The stock could not last out another long stage, so the stores were buried and the overseer went back forty miles for water. Eyre remained behind with the stock. He had only six pints of water left. The sheep were reduced to three, and the stock of flour had dwindled down to 142lbs. On the 25th the overseer brought up the horses and a fresh supply of water. Before moving forward on the following day the explorers abandoned everything that they could do without, keeping only one suit of clothes and a blanket each; they also killed a sheep for food. The cliffs had disappeared, and now the party moved along the coast as well as they could through seaweed and sand. Two days after one of the horses lay down from exhaustion. It was got on its legs again, but could only be brought on after being relieved of its load, which was distributed amongst the others. A little later on a pony dropped and was left to its fate. The horses had had no water for five days, and those which were left followed the men like dogs. Baxter, the overseer, now lost heart, and he pressed Eyre to return to Fowler's Bay. Eyre, however, was inexorable, he would go on; but he determined to abandon all the baggage and endeavor to save the lives of the horses. Soon afterwards a mare dropped behind, then a horse was tied up to a tree to save it, if water could be reached that night. They were now 136 miles from the last spot where water had been found. Some sandhills were seen and reached, but they were dry. Another day passed and the terrible country did not improve. About a quart of water was collected from the dew, and the horses still came on. On the 30th some sandhills were seen, and in a hollow Eyre struck water at 5ft. deep. The party had covered 160 miles *in seven days without finding any traces of it.*

The horses now improved a little. A sheep was killed, and Eyre shot a wallaby. From this spot he sent the overseer back for stores. Baxter was absent for ten days. He had abandoned one horse thirteen miles from the place where the provisions had been buried, and two others remained behind about five miles from the camp. These two were easily recovered. Eyre himself returned to bring on the load of the dead horse, and then recommenced his journey. The party was now about

650 miles from King George's Sound, and there were provisions only enough to last for three weeks. Baxter still wanted to return, but his leader refused. Eyre was sick from eating unwholesome fish that had been caught, but he was determined not to turn back. A horse was killed for food, and all the party were made ill from eating it. Two of the black boys, however, stole a large quantity of the meat, and their rations were reduced as a punishment; they then deserted the camp. The last sheep was killed, and the journey was resumed. Towards night the native boys came back again. On April 26th a forward movement was made, and everything except the provisions, arms, ammunition, and the clothes worn by the party was left behind. They gained fifteen miles on the first day and nineteen on the second. The horses were hoppled in the evening and turned out to feed. Between 10 and 11 o'clock Eyre went to look after the horses, which had strayed away. On his way back he heard the report of firearms, and on reaching the camp he found that Baxter had received a gunshot wound in the chest. He died almost immediately after Eyre arrived. The two black boys who had left the camp had murdered the overseer, and levanted with some of the arms and all the stores they could carry away. In the morning the overseer's body was wrapped in a blanket and covered with leaves—all the burial that could be given to his remains. The stock of provisions left comprised about 40lbs. of flour, 4 galls. of water, and a little tea and sugar.

Eyre moved on for about ten miles on that day, and rested. In the evening the two blacks were discovered following; they wished to entice Wylie away. They still persisted in following the camp, but Eyre moved on rapidly and left them out of sight. Nothing further was seen of them, and they must have perished in the desert. Eyre hurried onward as rapidly as he could, in order to get clear of his treacherous followers as well as to find water for the horses, which had not had a drink for five days. On the 2nd May they discovered a native well, at which the animals were refreshed. They had traversed 150 miles of rocky barren tableland without water. They remained here till the 10th, when one of the horses was killed and his flesh dried. The country now improved; it became hilly, and water was easily obtained. Here Eyre and his boy both became ill, doubtless from the effects of the diseased meat which they had eaten. On the 16th and 17th they crawled along as far as their wretched state allowed them. On the second day a native dog took away some 14lbs. of the horseflesh that was left, and the rations were reduced in consequence. On the following day they reached a well-grassed piece of country, and Eyre shot a kangaroo. On the 19th he travelled only four miles, but then he came upon excellent grass and

plenty of water. Here they rested for six days, and they shot several kangaroos; besides that they caught fish and crabs in the sea. The rest and the excellent food they had procured restored them considerably, and the horses were so far recovered that they were able to carry Eyre *occasionally*. The wayfarers started again on the 26th May. They found water, but their luck in finding game was bad. At last they were reduced to a few spoonsful of flour and water as their sole sustenance. At length they found some reeds, the roots of which were edible. They had now to live upon anything they could find. On June 2nd their flour was all gone, and they started in the morning without breaking their fast. They had no food of any kind. Eyre and Wylie got down to the sea, and to their unutterable joy they saw a ship at anchor. A boat put off, and they were taken on board. The vessel was a French whaler named the *Mississippi*, commanded by Captain Rossiter. They remained on board until the 14th June. The long rest and abundant food had brought them round so that they could continue their journey. If they had not found the ship they must have perished. Captain Rossiter gave them clothes and fresh provisions and they entered on their dreary pilgrimage once more. They pressed forward as rapidly as they could, over a very sterile country, to Cape Barren. It took twelve days to reach that spot, and at 150 miles from Rossiter Bay, where they had obtained relief, they came upon tracks of natives. On the evening of the 30th of June they were in view of the hills at the rear of King George's Sound. Their progress was greatly retarded by the wet state of the country, and it was not till the 7th of July that they reached Albany. Thus ended the most daring and the most remarkable of the feats of exploration that have ever taken place in Australia. Eyre's determined courage and perseverance deserved to be rewarded with better results. His arrival in Albany caused the most profound surprise; he was believed to be dead, and no one ever expected to see him or to hear of him again.

In 1842 Captain Frome, R.E., Surveyor-General, led an expedition to examine the country round Lake Torrens; he did not penetrate much further than Mount Serle, for the country was so bad that he returned.

In 1846 Mr. J. Ainsworth Horrocks, who had been in the colony since 1839, and in various small expeditions had gained considerable experience in exploring, organised a party to take up the project that had baffled Eyre. He proposed to cross the head of Spencer's Gulf and travel north-west from the further side of Lake Torrens. He took with him a camel, the only one then in Australia, and a flock of goats, because they travelled well and could subsist in very barren country. After travelling for nearly a month, during which he was much distressed from the want of water, and had been much harassed by attacks of natives, his proposed

expedition was brought to a sudden and tragic close. As he was loading the camel on the 26th of August, a loaded gun, which was on the camel's back, went off, and he received the full charge in his face. The wound was evidently a fatal one. His companions rapidly returned with him to his station, where he died on September 1st. He was only twenty-eight years of age, but he had shown so much courage and ability in the expeditions which he had previously undertaken that there seems every probability that if his life had been spared he would have achieved a very high position amongst the ranks of Australian explorers.

CHAPTER X.

1843—Capt. Sturt's Expedition—Sanctioned by Lord Stanley—The Party Organised—Leaves Adelaide in August, 1844—Party Assemble on the Darling—Composition of the Expedition—Journey Commenced—Lake Cawndilla—Indifferent Country—Terrible Heat—Flood's Creek—Mount Lyell—Permanent Water Found—Great Heat Continues—The Barrier Ranges—Poole's Journey—Horses Die from Thirst—Sufferings of the Party from the Heat—The Grey Ranges—Water Drying Up—Scrubby Plains—Desert Country—Sturt Unable to Push Forward—Thermometer 131° in the Shade—Permanent Waters Discovered by Poole—Imprisoned There for Six Months—Waters Fail in Every Direction—Sturt Moves North—Is Turned Back by Scrub and Desert—Dreadful Heats set in—Digs an Underground Chamber—Weather Moderates—Sturt Explores to the East—Return to Camp—Sufferings of the Party from the Heat—Scurvy Breaks Out—Prospects of Rain—Sturt goes towards Mount Leslie—No Water Found—Mr. Poole's Illness—His Death—Stuart sent to Mount Hopeless—Comes to an Arm of Lake Torrens—Lake 'Frome a Salt Lake—Sturt again Tries to Penetrate North—Strzelecki's Creek—Good Country Found—Sturt Hopes to make the Centre of the Continent—Desolate Plains—A Stony Desert—Find a Native Well—A Horse Abandoned—Sturt can Penetrate no Further—Sufferings of the Party—Illness of Dr. Browne—Sturt Makes One More Attempt—Cooper's Creek—Strikes the Stony Desert Again—Follows Cooper's Creek to the East—Again Turned Back—Renewed Sufferings—Fearful Heat—Thermometer Bursts—Another Horse Abandoned—Want of Provisions—Sturt Ill with Scurvy—Preparations for Return Home—Long Stage Without Water—The Barrier Ranges—The Party Reach Lake Cawndilla and Obtain Assistance—Return to Adelaide.

In 1843 Captain Sturt wrote to Lord Stanley, Secretary for the Colonies, offering to lead an expedition into the interior of the Australian continent. He believed that good country would be found a little way beyond the tropics, and he was anxious to unravel the mystery of the interior. Lord Stanley approved of the proposal, and he directed the Governor (Captain Grey) to organise and fit out the exploring party. This was done, and Sturt left Adelaide on August 10th, 1844. Sturt's instructions were to travel due north from Mount Arden, and endeavor to reach the centre of the continent, but on no account to risk the safety of the party by trying to cross it. Sturt did not consider it prudent to try to cross Lake Torrens, but he intended to start from the Darling River at the point from which Major Mitchell had turned back in 1835 owing to the attacks of the natives. The place was called Laidley's Ponds. It was supposed that the Darling was joined there by a stream which rose in some distant

mountains that were visible in the north-west. The country between the river and the ranges was an open plain, which Sturt hoped to cross with the aid of the streams, and when he got to the ranges he believed that he could proceed to the centre of the continent by relying on the watercourses that would be found amongst the hills. The party assembled at the Darling on September 24th, 1844. It consisted of Captain Sturt, in command; Mr. Poole, assistant surveyor; Mr. J. H. Browne, surgeon; Mr. J. McDouall Stuart, draughtsman; and twelve men. The equipment included eleven horses, thirty bullocks, 200 sheep, six dogs, three bullock-drays, one horse dray, a spring cart, one boat and boat carriage, and general stores enough to last for eighteen months. On the 8th October the party arrived at Laidley's Ponds; but it was at once found that there was no creek flowing from the hills which were seen in the distance to the north-west, but only a watercourse leading to two lakes, into which the floods of the Darling were then flowing. This was in long. 142° 5′ E. and lat. 32° 25′ S. There was no grass in the locality, and the place looked dreary and wretched. Mr. Poole was sent forward to one of the lakes to report on the state of the feed, and, if there were none, to proceed to the ranges in the north-west. He was absent four days; he had reached the lake, but there was no grass. On arriving at the ranges there were more hills visible to the north and ranges to the south-west, and also another lake, but there was no other water in the hills. The party left the Darling on the 17th. After completing his survey up to Lake Cawndilla the leader pushed forward to examine the hills. Forty miles of travel over a barren level tract of sand and clay, with a little brushwood and some tufts of grass, but very few trees, was all that was gained at that time. The party found a few native wells which supplied immediate wants, and in following up a dry watercourse they came upon a long serpentine pond. From this point they moved north-west, and eventually reached the ranges, which they ascended. The outlook was not cheering. There were hills in the distance separated by an inaccessible valley, but the general prospect was cold and unfertile. Moving to the south a desolate tract of forest tableland surrounded by hills was discerned, but without any signs of water to lead them to the north-west, so they returned to the serpentine pond. On the 24th they made a fresh attempt to advance; but not being able to get through the ranges, they returned to Cawndilla.

On November 1st the whole party was moved to the serpentine water-hole, and Sturt again struck out to the north-west with three men and a cart with a tank of water. The ranges were crossed, and at their western base a pool of water was found. On the west there was an unbroken level, and, as far as it could be seen, barren and useless. This was in

lat. 31° 22′ S. An easy route to the north-west was soon met with, and a fine creek flowing from a rocky gorge in the ranges was discovered. It did not serve for long, and when it failed a supply was taken on in a tank. On the 11th they moved towards some low hills visible far off in the west. The first few miles was over a barren clay, and afterwards the ground became covered with fragments of quartz on an undulating plain. They continued their route till the 12th over sand ridges with pine trees scattered about. To the west the plain continued unbroken. As they returned they were caught in a thunderstorm, which covered the plains with large sheets of water. This unexpected relief would have enabled Sturt to advance much further; but as soon as he got back to camp he sent Mr. Poole out in that direction, and then moved the depôt up to the creek on the western edge of the range. Poole left on the 20th November and returned on the 2nd December. He had gone west and somewhat to the north through barren country until he had seen Mount Serle. Here he travelled over barren sandhills until he reached low, marshy, brackish lakes—unbounded to the north and south. They were supposed to be connected with Lake Torrens. The west was proved to be impracticable, so that Sturt was forced to look for water along the ranges to the north.

On the 4th of December he sent a man named Flood to push on for sixty miles in search of water, for the party could not remain where they were. The heat was terrible, rising at times to 125° in the shade, and the water was daily becoming less and less. Flood returned after finding a creek forty miles away, but he reported that the hills declined rapidly, and did not continue much further to the north. On the 10th the whole party reached Flood's Creek. From the ranges Sturt was able to see Mount Lyell and Mount Babbage. The country was wretched. The few natives who were seen were miserably emaciated, as if there was but little food for them in that region. He journeyed to Mount Lyell through scrubby ranges until he neared the hill. It was 2,000ft. high, and of a barren and useless character; but the country towards the Darling looked even worse. Messrs. Poole and Browne, who in the meantime had gone to the north-west to look for water, returned on the 25th, having reached lat. 28° S. They reported that they had found what they considered to be a permanent supply. It was, however, forty miles off, and it was doubtful whether the cattle could be got over the intervening ground. The thermometer's daily range was from 100° to 120° Fahr., and the cattle kept under the trees all day long for shelter, and they became low in condition. The nights, too, were extremely warm, for the hills were all on fire, and it was hardly safe to risk going without water for a single night. Browne and Poole saw the Stanley or Barrier Ranges, as they

were called, but they soon terminated, and another and apparently a more important range succeeded them. Fifteen miles from this a fine creek was discovered, and as they followed it to the north-west they came upon twenty or thirty large waterholes. As Poole moved forward he met with several other creeks, but, as he neared the last, the plain was rough and stony for about ten miles, in crossing which the horses suffered greatly. On returning he got a view of the country from one of the hills. It was a thick and level scrub, apparently impenetrable. On the 28th the whole party left Flood's Creek, and on the 30th reached the first creek found by Poole and Browne. The cattle were exhausted by the journey, and some of them had fallen dead from thirst. Many of the men also suffered greatly, for, owing to an oversight, they had been left without relief. The whole of the party did not reach the creek till January 2nd, 1844. The heat was overpowering; "the ground became so hot that the bullocks pawed it to get a cooler bottom; the men's shoes were scorched as if by fire, and some who had stripped to the heat were blistered and severely burnt."

The party, so far, had travelled on the west side of the Stanley or Barrier Ranges: now they had got to the east side of a new range which was named the Grey. They pressed onward with much difficulty from creek to creek over stony plains. Those creeks mostly terminated after a short distance in plains or reedy lagoons. On the 10th of January they were so impeded by scrub that they were compelled to camp that night without water. They got through the scrub on the next day, passing over sandy plains covered in places with small fragments of quartz. Moving to the east, they camped at a grassy spot where there was a good sheet of water, but it was shallow and drying up, and it became urgent to find another camping place without delay. On the 14th, Sturt, with a small party, went out north-west, and he saw that the creeks discovered by Browne and Poole had dried up. Poole was then sent back in order to search for water on his way home. Sturt continued his examination of the hills, which were isolated, with occasionally small pools of bad water at their bases. On the 18th Sturt had reached a spot where they ceased altogether. The plains beyond were covered with a thick scrub, which Sturt entered. Striking north-west he came to a desert, in which sandy flats and barren sand ridges followed in long succession. In the evening he reached some hills with dry water-courses; from the top of one of them, only 570ft. above sea level, he obtained a view of the surrounding region. There was nothing but dark scrub visible, and he relinquished all hope of proceeding further in that direction. Sturt now returned to the creek in the scrub. It was close to a native camp which had been abandoned. The creek soon dis-

appeared in the plain. The heat was fearful, the thermometer having reached the height of 131° Fahr. It was impossible almost to do anything. After eleven days of disappointment and suffering Sturt returned to the camp. On his way back, Poole had passed to the west of a small range, and found a large sheet of water in the bed of a creek. Crossing the head of this he came into a rocky glen with many pools in rocky basins, which contained an apparently inexhaustible supply of water. Here the party remained for six months. The waters had failed on every side, and it would have been impossible for them either to advance or retreat.

The camp was three miles and a half south-south-east of Mount Poole. The country was dry, and parched, and the thermometer ranged daily from 100° to 117° in the shade. The only living things which stood the heat were kites, which were both daring and troublesome. Sturt now made another attempt to go north, and he set out with a cart, a tank of water, and a lad. His intention was to reach latitude 27° S., if he could. He pushed on till his horse nearly died. He had found a little water in the ranges, but on the plains there was nothing but interminable scrub and desert. The farthest point he had been able to reach was latitude 28° 9″ S. On the 17th February he went out once more, following down the creek near the native camp; it gradually increased in size, and in about fifteen miles it was joined by another creek containing a small supply of water. At twenty-nine miles it turned to the west, and the country was more level and open. Eight miles further it was lost in an extensive plain surrounded by sandhills. Turning to the north he found a fertile valley of small extent, which led to sandhills like those at Lake Torrens. On the 21st he regained the camp. Here the heat was so severe that the whole of the party were suffering terribly. It was impossible to work, and writing, drawing, or mapping the country were out of the question, for the ink and the colors dried up as fast as the pens and brushes could be replenished. An underground chamber was dug by Sturt's directions, in which the people could obtain some shelter in the hottest part of the day. The men were in a state of forced inaction. At length the weather became cooler, and in February the last days were chilly, and it was noticed that the birds had flown northwards.

On March 13th Sturt and a small party went out to examine the land to the east. Water had been found lower down the creek, and it was hoped that it would enable them to cover a considerable extent of the country. They crossed large plains, and found a creek with high banks and abundance of water in it. Here they saw piles of dry grass which had been threshed out by the natives. Neither Sturt nor Mitchell, who had seen similar heaps, understood what they meant. They were,

doubtless, the stalks that were left after beating out the seeds of the nardoo, on which the natives to some extent depend in these regions for food. The seeds are extremely hard, and they are ground by the women into a coarse meal, which is made into a kind of bread or biscuit. This is certainly nourishing, but the labor of preparing it is immense. They penetrated to a point ninety-seven miles from the depôt, but they were still about 140 from the Darling. They had passed over plains which had been occasionally flooded, and had met with much scrub. Their knowledge of the country was not greatly increased by the journey. On the 21st they returned to camp and rested till the end of the month. April came, but it brought no change in the weather. Day after day clouds gathered and thunder was heard in the distance, but there was no rain. The air was so dry that the woodwork of the drays was loosened, and they almost fell to pieces. The screws in the boxes were drawn, and the horn handles of the instruments and the combs split up into thin strips. The hair of the men and the wool upon the sheep ceased to grow; the lead in the pencils dropped out, and the finger-nails of the men became brittle like glass. In addition to these discomforts, scurvy broke out amongst the explorers. Sturt was lightly attacked. Dr. Browne suffered considerably, and Mr. Poole became extremely ill. On the 18th heavy clouds were seen in the direction of Mount Serle, and Sturt, hoping that rain had fallen in that direction, made a journey of over seventy miles to the west. No water was found in that direction, and he was forced to retrace his steps The country passed through was generally barren, with a few grass flats and many sand ridges. Sturt made no further attempt to explore for some time In April, May, and June there was no rain. One starving native came to the camp for food. Mr. Poole in the meantime grew worse, and could scarcely bear shifting in his bed. The water in the creek showed signs of failing, and the provisions were getting short.

Sturt now began to feel that he could not penetrate much further into the interior, but he hoped, if there were rain, he could send Mr. Poole back with half of the party, and his life might be saved. On the 12th of July rain set in, several wet days followed, and the creek was filled to the level of its banks. Mr. Poole was sent away as soon as was possible, but it was now too late to be of any avail. A few hours after the return party had left, a messenger came back with the intelligence that Mr. Poole was dead. He was buried near the depôt, and his initials were cut on a tree which grew near. On the morning of the 18th the remainder of the party pushed onwards to the north-west. They crossed sandy and stony plains on which there was plenty of water, but they got on very slowly. On the 26th they were only sixty-one miles from the depôt.

Sturt now fixed upon a camp at a grassy well-watered creek, to which all the party were brought. This was the Frome Creek. Mr. Stuart was at once sent forward with instructions to chain in a south-west direction towards Lake Torrens, about the latitude of Mount Hopeless, in order to connect Sir Thomas Mitchell's survey with the surveys of Frome and Eyre. For a hundred miles he found nothing but barren sandhills with a little surface water, and there was only one small creek. Ranges were visible to the west, and then a dry lagoon, the bed of which was white with salt. This was a part of Lake Torrens. Beyond this point Lake Frome was discerned. It was an immense shallow basin over ten miles broad, with patches of deep blue water in the centre, perfectly salt. There was a gradual descent to the water of about a mile and a half, the ground intervening being covered with a low scrub. Stuart tried to get across, but he found it to be utterly impassable in every direction. This lake appeared to be below sea level. Its situation is latitude 29° 14″ S. and longitude 139° 12″ E.

Leaving the depôt in charge of Mr. Stuart, Sturt prepared to continue his movement to the north. He took with him Dr. Browne and three men, with provisions for fifteen weeks. They left on the 14th of August. Four days were spent in passing over sand ridges and grassy flats which showed a little water remaining after the rains. On the 18th they came to a large creek with extensive pools of water, and the habitations of natives. This was called Strzelecki's Creek. Extensive plains presented themselves, with creeks at intervals containing water, and some with large gum trees growing in their beds. Tracks of natives were abundant and there was plenty of fish in the watercourses. The journey thus far had been more satisfactory than had been expected, and as the country had improved and there was plenty of water, Sturt thought he might be able to reach the centre of the continent. On the 24th August the country improved still more, but after a few miles a hill of red sand confronted them. Hills of a smaller nature succeeded each other for twenty miles. Some salt lagoons were seen, and in the evening a fine pool of fresh water was discovered, to which the party moved on next day. Sturt walked to a sandhill a couple of miles distant, and from its summit he saw an immense plain, quite level, and of a dark purple color, without trees, grass, or any traces of vegetation. It was a stony desert. He determined to cross it if possible. His party left the camp on the 26th, and soon found a good supply of water. They then tried to cross the desert. The ground was covered with fragments of water-worn quartz and sandstone. At night they camped without any water. Next day they pressed forward through a belt of polygonum, about two miles wide, to which succeeded an earthy plain devoid of vegetation. It

looked as if it had been flooded and the surface had dried. Towards the evening water was found, but there was no grass for the horses, which had now gone two days without food.

Next morning they fell in with a watercourse with water in abundance, but no vegetation of any kind. Sand ridges were before them and flats beyond, but these would be turned into morasses if the weather became wet. To the north-west a forest was reached, but there was no grass. Just before sundown a creek, quite dry, lay before them. In it was a native well, with a small quantity of water, barely enough to satisfy immediate needs. One of the horses became useless, he was so exhausted, and he was turned loose to shift as he could. The following day's journey was over sand ridges which extended into plains, broken by yawning rifts, over which it was difficult to get the horses. They camped without water. The horses gnawed the bark off the trees and searched among the dead leaves for scraps of food. It was a wonder that they held out. On the 1st September they found some puddles, which appeased the thirst of the animals for a time. The country then improved, and they came to a fine creek, with extensive reaches of water and good grass on its banks. They travelled along this for a couple of days, when the creek ended in a salt lagoon, beyond which there was no fresh water. Search was made in every direction, but without success. From the top of one of the sandhills the view disclosed nothing but sand ridges everywhere. This place was fifty miles from the last creek. They camped near some acacia bushes without water, and they had been almost without food since they left on the 6th September. Sturt penetrated no further. He was within one degree of reaching the tropics, and not more than 150 miles from the centre of the continent. The little band returned to the creek, and from thence Sturt made another effort to travel north-east. For two days he met with nothing but salt plains and red sand, which drifted about in all directions. A few natives were seen, as well as smoke from their fires. This circumstance held out some promise of improvement in the country, but Sturt was unable to go further. In returning to the depôt the party suffered greatly. Dr. Browne was so ill that he was barely able to keep on his horse, and the rest were terribly exhausted. They had lived upon 5lbs. of flour each per week, and they had scarcely anything else. The water failed as they retraced their steps, and they had the greatest difficulty to make their way back again to the creek. They arrived at Strzelecki's Creek on the 29th September, and at Fort Grey, as their main camp was named, on the 2nd October. They had been absent for eight weeks, and had travelled 800 miles. They had been prudent enough to deepen some of the waterholes as they passed outwards, otherwise it cannot be doubted that the whole of the party would have been lost.

Deeply as he had been disappointed, and much as he had suffered, Sturt would not give up his task without making one more effort. He proposed to leave Dr. Browne with all the men but three, whilst he went forward again. Dr. Browne endeavoured to dissuade him, but to no purpose. There was considerable risk in this new attempt, for there had been no rain since Mr. Poole had died, and the water supply at the camp was becoming low. Dr. Browne was left behind with instructions, in case of need, to fall back upon Evelyn Creek. The needful preparations being completed, Sturt left the camp on October 9th, in company with J. M. Stuart and two men with provisions for ten weeks. In two days they reached Strzelecki's Creek, and then followed a north-west course over flooded plains bounded by sandhills. At the close of the day they came to a belt of trees which lined a splendid creek, containing several fine reaches of water. There was plenty of grass, and the waterholes were well stocked with fish. This was named Cooper's Creek; but it is now generally known as the Barcoo, which is its native name. This stream ran east and west. The leader of the party was bent on going to the north. He passed through plains of considerable extent, well grassed, but the only water lay in little pools which remained on the surface after a thunderstorm. All went well for a couple of days, and then a most unwelcome change took place. On the 15th the dreaded sand ridges reappeared. They did not last for long, and grassy plains lay beyond them. These plains Sturt called the Plains of Hope. The 17th, however, brought them to sandhills once more, over which they struggled for two days. A little water was found, but everything was desolate in the extreme. From one of the sandhills Sturt obtained a view which summarily dispelled all his hopes. This sandhill jutted out into the stony desert "which stretched on every side like a dark purple sea before him." Sturt now tried to cross the plain again, and he succeeded. On the opposite side he met with sand ridges covered with fragments of stone, and all around no other prospect presented itself. This was in lat. 25° 58′ S. and long. 139° 26′ E. The horses were now so broken down from want of food and water that Sturt was compelled to turn back. As the men moved in the direction of the camp they found that all the wells but one were completely dry. This one saved their lives. One of the horses died in the desert, and, with this solitary loss, they regained the Barcoo on the 28th of October.

The discovery of the Barcoo was the only important one that had been made, and Sturt determined to follow it up to the eastward. He buried all the stores he could spare, and then went on. Though the channel of the river was dry, there were numerous large pools or reaches with abundance of water. Natives were seen in considerable numbers,

and they were quiet and friendly. The journey was continued to the 31st, when stony ranges showed themselves to the north. The river here had two channels, only one of which contained water. Three days later several tributaries to the main stream were seen, which appeared to come from extensive flats, in which Sturt thought the river took its rise. The immense plains which he now saw before him convinced him that he could not proceed further east, as he himself was very ill and one of his men apparently worse. The horses, moreover, could scarcely move along, so he brought his journey to an end, and returned to the buried stores. Having recovered them, the men moved on to Strzelecki's Creek. Sturt first came upon the Barcoo in lat. 27° 44′ S., long. 140° 22′ E., and he turned back in lat. 27° 56′ S., long. 142° E. The waterholes which he saw in the distance were covered with wild fowl of all kinds.

On the return march to Strzelecki's Creek the little party suffered as they had never suffered before. They were exposed to a furious hot wind as they slowly moved along. The ground they trod on was so hot that matches dropped immediately took fire. A thermometer marked to 127° burst from the terrible heat, and the horses could scarcely be got to move on at all. They had to travel eighty-six miles without water. When somewhat less than half that distance had been covered, some of the horses gave in. One of them was abandoned. Want of food now began to tell upon the explorers, and Sturt, ill as he was, hurried forward alone to the depôt for assistance. When he got there the remainder of the party had gone away. They could not remain where they were because the little water that was left had become putrid. The rest of Sturt's party reached the depôt, but only with extreme difficulty. Here they had a meal of damper, which was the only food they had tasted for two days. In looking about the camp they dug up some bacon and suet, which had apparently been hidden by the dogs. It was eaten with avidity, if not with relish, and it put into the men some little strength, which they sorely needed. Sturt was badly affected with scurvy, but he hastened forward to procure aid, and he succeeded in getting to the tents on the 17th of November. He found that Dr. Browne had almost entirely recovered, and all of the men but one were in good health. Assistance was sent to the people who were slowly coming on behind, and they were all brought to the camp in safety. The weather gave indications of another hot, dry season, so that there was no time to be lost. It was necessary now to push homeward without the least delay, for it might not be possible to get back to the settled districts. A search for water was unsuccessful, and it was certain that for 120 miles, to Flood's Creek, there was no surface water at all. A messenger sent forward to that place found that the little water that remained at that place was perfectly black and likely to dry up in a

very short time. Sturt was alarmingly ill, and he had not been able to leave his bed since he had returned into camp. He directed three bullocks to be killed, their skins filled with water, and sent them forward on a dray half of the way to Flood's Creek. The remaining bullocks were relieved of everything that could be spared, to enable them to carry water enough for the intervening part of the journey. With all these precautions the journey was a dreadful one; but Flood's Creek was reached at length, and the cattle had not suffered very severely. The party now crossed the Barrier Ranges, and hurried onward to reach Lake Cawndilla, where they expected to find that assistance had been sent to them. Some water was found on the road, and that eased their sufferings to some extent. When they were full seventy miles from Cawndilla all their provisions were exhausted. Mr. Piesse, who had been sent forward into the settled country to seek relief, had succeeded in getting it; but the wayfarers could not know this. A hurried and miserable stage of thirty-six miles, however, brought their troubles to a close. Captain Sturt was extremely weak during the latter portion of the journey, so much so, that he was compelled to rest at the Darling for some time before he could continue his journey to Adelaide. The party reached Adelaide in March, 1846 having been absent for about nineteen months. The enormous privations and the personal sufferings of Captain Sturt had badly affected his sight, and at length he became totally blind. A pension of £600 per annum was settled upon him by the South Australian Government, which he enjoyed till the time of his death, in 1869. Captain Sturt was nominated a K.C.M.G. by Her Majesty, but he had died before the news of the honor conferred on him could be communicated to him. Her Majesty, however, in consideration of Sturt's distinguished services, directed that his widow should take the rank and style which she would have enjoyed if her courageous and indomitable husband had lived. Sturt returned to Adelaide with the conviction that the centre of Australia was an immense stony desert. Later explorations, however, have corrected that impression, and it is almost as easy now to cross the continent from Adelaide to Port Darwin as it was in the early days to travel from the capital to 100 miles beyond the Burra.

CHAPTER XI.

Babbage's Search for Gold—Goyder in the North—Babbage sent out again—Recalled by Major Warburton—John McDouall Stuart—Strikes out to the North—Forced to turn back—Makes Streaky Bay—Nearly Starved—Returns to Adelaide—Offers his Plans to the Government—Not Accepted—Sets out to Cross the Continent—Arrives at Chambers' Pillar—Discovers the Macdonnell Range—Arrives at the Centre of the Continent—Plants his Flag in Central Mount Stuart—Moves Forward—Attacked with Scurvy—Abandons some Horses—Unfriendly Natives—Attacked by them—Forced to retire—Return to Adelaide—New Expedition Organised—Stuart to Lead—Moves Forward in his Old Tracks—Country Terrible—Horses Exhausted—One Hundred Miles without Water—Stuart tries to make the Gulf of Carpentaria—No Clothes—Provisions Nearly Exhausted—Stuart and Party Seriously Ill—Return to the Settled Districts—Stuart Attempts Again to Cross the Continent—Succeeds—Brings Back his Party Without Loss—Value of his Discoveries—Explorers Generally—Warburton's Journey to West Australia—Other Explorers—Stuart's Retirement.

In the year 1856, Mr. B. H. Babbage, who had been engineer to the City and Port Railway, and who professed to have considerable geological knowledge, was sent to the north to search for gold. He found none, but he discovered several creeks and permanent waters near Lake Torrens, in the country that Eyre had reported to be waterless. Babbage endeavored to find a crossing-place over Lake Torrens, but having lost his horses, he returned. In the following year, Mr. G. W. Goyder, Deputy Surveyor-General, was directed to survey the country that had been found by Warburton, Babbage, Swinden, and others who had made various small explorations in that region. He went out in April and returned in June, having made, as he thought, some most important discoveries in the shape of large fresh water lakes, bounded by perpendicular cliffs, &c. Other remarkable features in the country, theretofore regarded as a desert, were described in his report, which created considerable sensation. Captain Freeling, R.E., the Surveyor-General, was immediately sent out with a party to report further upon the supposed discoveries, but when they came on the ground the phenomena described by Mr. Goyder were ascertained, as the Surveyor-General reported, to have been the result of mirage, and did not exist as represented. There was no lake, and the conclusion drawn in Mr. Goyder's report that the lake was subject only to the most trifling variations of level was proved to be an erroneous deduction.

In 1858, Mr. Babbage was sent out again to explore to the north of some discoveries recently made by Mr. Hack, lying between the western shore of Lake Torrens and the eastern shore of Lake Gairdner. It is needless to give the particulars of this expedition. It was a total failure. The leader was a person wholly unfitted for the work, and Major Warburton was despatched to recall him. Warburton did this part of his duty, and afterwards made some explorations himself that resulted in valuable discoveries, which set at rest all questions as to Lake Torrens. That lake had been supposed to be much like a horseshoe in shape. It was now proved that the south part of the lake was not united to the gulf. The lake itself was divided into many salt water basins, with good land intervening, and plenty of fresh water. This knowledge proved to be of the greatest value to other explorers who endeavored to press forward into the interior.

Whilst Babbage was still in the field, John McDouall Stuart, who had been draughtsman in Capt. Sturt's expedition to the centre of Australia, commenced a series of explorations which ultimately solved the problem of the interior and led to the crossing of the continent from south to north. In June, 1858, he set forward with one companion, one native, and five horses. Reaching the Elizabeth on the 16th June, he camped there and then pushed on until he came in sight of Mount Nor'-West and Mount Deception. Examining the country carefully as he went forward, he met with a creek, named Stuart's Creek by Babbage, but which he re-named Chambers' Creek, as it is now called. His horses became crippled by the stony ground he had traversed, and then the country improved, though the travelling was hard, owing to heavy rains that had fallen. The country much resembled the stony desert of which Sturt and he had had a bitter experience. Here the soil improved. Rain detained him for a couple of days, and then he met with an immense plain with flat-topped hills dotted about them. At the end of this plain there was a range, from which a well-wooded country was seen to the north and east. There was another range to the north-west, from which the view to the north-east showed an extensive stony plain with broken hills in the distance; to the north another plain with distant table hills, and to the north-west the termination of the range from which the view was obtained, at a distance of about ten miles. The furthest point reached was in lat. 28° 20′ S. long. 134° 10′ E. Stuart now turned south. He was satisfied that he would be able to penetrate still further to the north, but he wanted to examine the country to the south and west. The route was over stony plains with one or two creeks. These plains soon terminated in red sand, quite impracticable to horses jaded and weakened as his were. He then moved south,

and then south-east to a point about a hundred miles north of a lake which had been found by Swinden and named after him. For five days he travelled over open plains at first, then through sandy scrub which became more dense as he proceeded, without water. One creek only was found, and for the rest of the time he depended on a few puddles left by the rain.

On the fifth day some hills were seen in the north. As his little band approached them the country was better grassed, but the prospect from the tops of the hills was not encouraging. On the 22nd of June they crossed a limestone ridge bounding a plain from north-west to east. The country around was good, but stony. Stuart examined it in every direction, and eventually he moved towards Fowler's Bay. From Mount Finke, which he met with on his return, he saw nothing but a dense scrub with open plains without any water. The party suffered the most terrible privations on the return journey. They had been out twice as long as their provisions had been expected to last, and these had been much reduced by wet and other damage. Stuart managed to eke them out until the party reached Lake Gairdner, where the last of the flour was consumed. They had now to live upon anything they could get. Sometimes they got a crow, at others a stray opossum, and on one occasion a wallaby, but at last they depended almost entirely upon marsupial mice, which were found in some abundance, and without them they must have been starved to death. At length they reached a place called Beelimah, where they lived upon shell fish until they reached Streaky Bay. Here Stuart was attacked by severe illness, and was unable to move until September 3rd. After getting away he suffered a relapse, and could go on only for very short distances. With much suffering, the party managed to reach a station at Mount Arden. They had been three months away; but they had done more in that time with the most limited means than any other explorers had accomplished with abundant resources. As soon as he had sufficiently recovered, he set out on a fresh expedition. The particulars of this journey have never been published, so that it is not known what he saw or how long he was engaged in it.

When he returned to Adelaide, Stuart offered his maps and journals to the Government on the condition of receiving a lease of 1,500 square miles of country for fourteen years, the first four to be rent free. The Parliament, to which his offer was submitted, rejected it; but it was determined to offer a reward of £10,000 to any one who would cross the continent at his own expense. In November, 1859, Stuart made an attempt to explore the country he had found, and to survey it into two blocks for pastoral occupation. He discovered many mound springs similar to some that had been met with by Warburton on his northern

journeys. Some of these were hot, and many of very large extent, covering as much as five acres. One, called the William Spring, was on a hill 120ft. high: the pool of water contained in it was about 100ft. long, and showed abundant tracks of natives, as well as the footprints of emus. He came to Lake Eyre on its western side, and in it saw several islands. The soil was a sort of concrete, formed of lime, salt, and gravel, and where the water had receded, a number of small fish dried and caked in salt were found. They were strewed about in great quantities on the shore, in a belt about a dozen yards wide.

Stuart had negotiated with the Government for a lease of the country discovered by him, or a reward for the discoveries he had made. Finding that he could not obtain either, he determined to make an attempt to cross the continent in order to secure the promised bonus of £10,000. In March, 1860, he had arranged his plans, and he left Chambers' Creek with only two companions, Mr. Keckwick and Benjamin Head. They arrived at the Neales on the 17th, from which the final start was to be made. The prospect was favorable, for abundant rains had fallen, but there was great difficulty in crossing the creeks which flowed into the Neales. The ground was very boggy and the beds of the streams unreliable. The party went forward over tableland, with varying soil, opening out into undulating grassy country with scrub. Passing through, their packs were considerably damaged, and they were obliged to camp for repairs. As they progressed, the country was composed of sandhills with a great deal of scrub. Forcing their way through this, and crossing more sandhills, a range was seen to the north-east. After penetrating thirty-five miles of mulga scrub they came to the junction of three creeks coming from the north-west. At the northern base of the range several fine waterholes were found, and the remains of a large native camp. On the 30th they crossed a wide gum creek, and immediately afterwards a low range of volcanic hills. The creek was called the Stevenson. Its banks were well grassed, and the mussel shells, crabs, and small fish which were visible in its bed, gave promise of its waters being permanent. They now passed over some large gum creeks and a range of quartz and ironstone with some gypsum. A view from Mount Beddome, its highest point, disclosed no change in the country. From Mount Humphries a flat-topped hill, reached on the 4th April, scrub was seen to the south and west, but more open country to the north.

A couple of miles from the camp there was a splendid creek, with good soil and grass and plenty of game. This country was considered by Stuart to be unrivalled. This creek was named the Finke. After crossing the main channel, which was full of quicksand, a native was surprised amongst the bushes, but as soon as he saw the horses he fled away. On

the 5th the explorers came to a hill 100ft. high, upon which stood a pillar of sandstone 105ft. high, 20ft. wide, and 10ft. thick, with two peaks upon the top. This was called Chambers' Pillar, in honor of Mr. James Chambers, at whose instance and with whose assistance principally Stuart had entered upon various explorations. A forward movement on the 8th over sand ridges and grassy plains towards a range of red sandstone hills brought the party to a dry creek named the Hugh. To the north there was a broken range, standing out boldly, with two remarkable bluffs in the centre. These hills were different from any yet seen. The explorers moved towards them. At length a smaller range was before them. It was nearly perpendicular, with large masses of sandstone on its sides. This was worse to pass than the James Range. A crossing place could not be found for miles. The rocks obstructed them, and then dense dead scrub, and now and then precipices, then again scrub, which stopped them like a wall. At last they reached the other side of the hills, but their clothes were so torn that they were almost naked, and one of the horses was badly lamed by a splinter. They camped at the head of the Hugh for a day to make good damages. The furthest range was reached on the 10th It divided into two chains, through which the Hugh flowed in a gorge bounded by perpendicular rocks. The valley was here fertile and grass plentiful. A few miles farther on the Hugh was crossed again, and pine trees were found growing on its banks. On the 11th they travelled through splendid grass country with plenty of water; but a high bluff in front arrested their progress. They reached its foot in the evening, and camped at a spring with abundant vegetation. Here they found a palm, the fruit of which they roasted; but a small quantity of it made them all very ill. On the 12th the Macdonnell Range was discovered, and after crossing it they found a permanent waterhole, at which they camped.

The outlook from the hills disclosed nothing but an open scrubby plain into which the creeks from the ranges apparently flowed. Stuart decided to push on. He travelled twenty miles on the following day over bushy ground, well grassed; but he was obliged to camp without water. Two days afterwards he saw a small creek bearing east from the range. Mr. Keckwick had also been searching for water, and he found it in a creek to the south. Stuart would not quit the range until he found permanent water, for the country all round was dry, and looked as if no rain had fallen on it for years. On the 19th the camp was moved to east of the Reynolds Range, from the top of which (a hill named Mount Freeling) Stuart had seen a creek. The country was rough and impracticable for horses. There was abundance of grass and, about ten miles off, a good supply of water. Another day passed, and then the country

improved. They found a large creek with water in it after passing over the range, and good grass, with abundance of new and beautiful flowers. The party were now ill, suffering from scurvy, but they obtained some relief from the vegetation which was around them. Another thirty-six miles brought them to a small pool of rain water in a small creek flowing to the north-east. On the 22nd, when Stuart made his observations, he found that he had reached the centre of the continent. He had so far succeeded where all other explorers had failed. About two miles and a half from the camp there was a high hill—it was not exactly in the centre of Australia, but the only elevation at all near it. This he named Central Mount Stuart. It was about 1,000ft. high. He ascended it, and planted on it the Union Jack, and, having given three cheers, he buried a bottle, within which was enclosed an account of his discovery.

The country round Central Mount Stuart was red sand without stones, and well-grassed, but the country to the north was dry and unpromising. Stuart now decided to make for the sources of the Victoria River, and thence to cross the continent. Pushing on for thirty eight miles without water, he reached two mountains—Mount Denison and Mount Leichardt. Here water was found with luxuriant grass and vegetation. Tracks of natives were met with in several directions. On the 28th Stuart climbed Mount Denison. Its height is not given, but it was the highest hill he had met with, and it took him eight hours to reach the top. The ascent was so difficult that he was compelled to leave his horse tied to a tree about half way up the ascent. High mountains appeared to the south and west, and then an interminable plain covered with patches of scrub. To the west there was another range—the Barkly—which he determined to reach. As he descended the mount he was startled by seeing a native smoke not far from the place where he had fastened up his horse. He came down as speedily as he could, for an encounter with the blacks single-handed was a thing to be avoided.

The next stage was twenty-four miles over bad country, with only a little water in a native well at the end of the journey. Another journey of thirty-one miles was over level ground of loose sand and spinifex. There was still no water, and the ground looked as if it could not retain it if it fell. They were compelled to return, and the horses were got back with great difficulty. They were forced to rest for three days at Mount Denison, for they were all exhausted and sick from over-exertion. They moved from Mount Denison on May 12th, on a course a little east of north. No water could be reached, so they went back to Central Mount Stuart. The horses were in a bad state. Stuart himself was ill from scurvy, and much shaken by a fall from his horse in the scrub. He was in the greatest pain, and was scarcely able to keep in his saddle. His hands

were a mass of sores, which would not heal. His mouth and gums were in such a state that he could take only boiled flour and water. Keckwick suffered from bad hands, but was not otherwise disabled.

Stuart rested for a few days, and then went forward again over country, in most of its features, similar to that which had rendered the latter portion of his journey so difficult. The 1st of June brought him and his men to an extensive channel, with deep reaches of water containing small fish. Crossing over, the little band reached a low range of rocks. Stuart could not ascend them, so they moved on to some more distant ranges in the north-west. Beyond this a splendid waterhole was found which was deep and permanent, but there was no food for the horses near it. They pushed on, passing through broken granite rocks and thick scrub until they came to a large creek called Bishop's Creek, which terminated in a long green plain. Fourteen miles of rough country were traversed, then sixteen miles of scrub, and then thirteen miles of good grass. When that ceased, the scrub became dense and all signs of water had disappeared. He was within 300 miles of the Victoria River, but he could not pierce the scrub and he reluctantly turned back. Instead of making direct for Bishop's Creek he turned to the south. Here the country became worse. One of the horses went mad from thirst, and the others began to give in. In hurrying back three more horses were abandoned, and there was a well-founded dread that they would not be able to bring on a single one. Bishop's Creek was reached after a terrible struggle, and here they rested for a short time.

Some natives now made their appearance, but they were not friendly. Stuart felt himself so much better on the 18th of June that he set out again on a north by east bearing, but he was driven back to some ponds found by Keckwick. They were visited at this place by some natives, who made friendly signs, but nothing could be learned from them and they disappeared. On the 25th, as they were following down a creek for favorable indications of a route to the north, they descried natives watching their movements. In the evening they made a sudden attack on the little party, by throwing spears and boomerangs and firing the grass. Stuart checked them by a discharge of firearms, but the pack horses became frightened and ran away. The blacks tried to cut them off, but were not able to do it. The attack made by the natives convinced Stuart that he could proceed no further. His provisions were alarmingly reduced, and he bent his unwilling steps back to the settled country. As he moved homewards he was several times pursued by the natives. Although some of the waters on which he had depended had dried up, others were found, and the privations of the party on that account were not very great. Stuart reached the settled districts on

September 2nd. His progress was slow, for he was so stricken with scurvy that he could hardly keep on his horse. His companions were also ill, and came along with the utmost difficulty.

Stuart's journey, although unsuccessful in accomplishing the object for which it was undertaken, did a vast deal to strip the interior of its mysterious terrors. The centre of the continent had been passed, and much available country discovered. The project of crossing Australia from the Southern Ocean to the Indian Ocean was no longer a doubtful one. What Stuart had done in opening the track to the centre of the continent rendered it almost certain that a party, properly equipped and judiciously led, could accomplish the journey without any very extraordinary risk.

As soon as Stuart returned to Adelaide the Government organised a new expedition, the command of which was given to him. It consisted of eleven men, Keckwick being second in command. They set out on New Year's Day, 1861. Stuart was not in good health when the party left, so that they did not reach the Lindsay Creek, in lat. 26° 10′ S., until February 4th. They came to the Bonney on April 12th, and Stuart, having traced its course, moved on to Attack Creek, the place whence he was driven back by the natives on his previous journey. He arrived there on April 24th, and from that point struck out for the Victoria River on a north-west course. Four days were consumed in fruitless attempts to find water to enable him to bring his party on; at last a creek named the Tomkinson was found, and the whole party moved up and camped there. The place was fertile, abounding in shrubs and flowers, and a coarse kind of grain not unlike wheat was fairly plentiful. From this place they all pushed on to the Carruthers. From a neighboring hill Stuart saw distant hills covered with scrub. There were also native fires. After traversing a large extent of country without water, Stuart was obliged to return to the Hunter. From the 3rd till the 9th May, Stuart tried in almost every direction to find water to enable him to advance, but without success. He was now obliged to rest for a few days, for his horses were so worn out that they had hardly strength enough to move back to the camp. From the 13th to the 15th considerable progress was made, but on that day he was stopped by impenetrable scrub, which so damaged the clothes and baggage of the party that they had to remain for three days at Lawson's Creek to effect indispensable repairs. On the 20th Stuart went on with two men and seven horses. After travelling forty-two miles, he was brought up by a very dense scrub. There was no water, and no appearance of any hill or creek for sixty miles; he therefore fell back on Lawson's Creek. On the 22nd he found a splendid sheet of water, named Newcastle Water, to which the

whole party came on. On the 25th the men travelled along the water for twenty-nine miles. Here the natives attacked one of the men who was separated from the rest The man fired at his nearest assailant and so escaped. Stuart now moved to the north with three men and nine horses. A journey of thirty-eight miles through plains alternating with scrub brought him to scrub thicker than ever, and a view from a high tree disclosed only a more dense pack of bushes before him. He was only 100 miles now from one of Gregory's camps upon the Campfield Creek, but he was obliged to return. The horses were very weak, and the party was watched and closely followed by natives. A rest of a few days brought the horses round again, and Stuart prepared for a fresh movement. Rain, however, set in, the country became boggy, and the natives again made their appearance. They were dispersed by firing over their heads. On June 10th Stuart went on again, but as he advanced the scrub grew thicker, and he saw that it was hopeless to proceed further. Although the ground was so moist that the horses were sinking in it up to their fetlocks, not a drop of water was seen anywhere. He then tried to reach the Gulf of Carpentaria by crossing Sturt's Plains to the east, but scrub and the absence of water prevented him from making any further progress than he had made on the 22nd. Food was becoming scarce; each man had only 4lbs. of flour and 1lb. of dried flesh per week, and all felt the effects of the slow starvation which they were enduring. The horses, too, were in an emaciated condition; they had neither spirit nor strength, and Stuart was forced to return. On the 23rd June the party got back to the Tomkinson. Stuart determined if possible to travel round the south end of the fearful scrub which had baffled him so far. He took three men, ten horses, and a fortnight's food, and he travelled in a direction a little north of west. For twenty-eight miles there was no water, and he camped without it, and on the following day twenty-seven miles of weary work over red sand brought him to a halt. When there was water, there was impenetrable scrub; where there was no scrub, there was no water; at times there was neither scrub nor water. He had to return to the Tomkinson with his horses awfully distressed, for they had travelled over 100 miles without a drink.

He now made preparations for another attempt to reach the Gulf of Carpentaria by travelling north-west. One of his men was lost for three days, and a search for him considerably delayed his onward movement. Sixteen miles of travel brought him to plains, the same in appearance as Sturt's terrible plains—waterless. He was forced back. On his return he stayed for a day at a small creek that contained a little water. On the 4th July Stuart made his final effort to get through.

He took with him three men, ten horses, and a month's provisions. After thirty miles a little water was found. Beyond this, plains which became sandy, and then scrub, then low sandhills, and then a flooded plain, then sandy tableland and thick scrub, was what Stuart had to pass through. Nearly two days were occupied in forcing a way through the scrub, but he was obliged to give in, for the country was utterly impracticable. Digging gave no water, and at 5ft. deep the ground was still dry. To return was now the only course possible to ensure the lives of the party. Thirty weeks' provisions had been their stock at starting, and twenty-six weeks had passed away. It would take nearly ten weeks to reach settled country. After a short rest to shoe the horses and render the remaining baggage fit for travelling, the party set forward for home. They had very little clothes to cover them, they were all barefoot, and the men without exception were in bad health from over-work, thirst, and starvation. They moved away on July 12th, and on the 15th September came within the reach of civilised life. They had been absent for 260 days, or nearly nine months. This closed Stuart's second journey.

Stuart's return to Adelaide without having crossed the continent did not lessen the confidence of the Government in his skill and determination. Another party was organised with Stuart at its head, which left the settled country early in 1862. He reached the point from which he had been forced to return in the middle of 1861. After many disappointments waters were found in various places, which enabled the party to reach Purdie's Ponds on June 11th. Two days after Stuart went on again, and came to a small creek flowing north. Following this up, he found that it was a tributary of the Roper River, and was called the Strangways. Tracing it down, the Roper was struck. It was a splendid stream, but the grass on the banks was tall and quite dry. The natives who were in the neighborhood set it on fire, to the great annoyance of the explorers. The ground on the banks was boggy, and one of the horses stuck in it. In trying to get him out he was either drowned or strangled. However, his flesh was too valuable to lose, and it was cut up and eaten. This accident saved some of the provisions. From the Roper, Stuart pushed on to Chambers' Creek, in lat. 14° 47′ S. Here the country around had been fired by the natives, and was all ablaze. This was on June 30th. A few natives came to the camp in the evening, but when they saw a pigeon shot, they went off and were not seen again. A few days more brought the explorers to a series of sandstone gorges of a desolate appearance. It was in a tableland, but after a time basaltic rocks took the place of sandstone. Beyond a small stream named the Catherine, which was found on the way, the country altered to slate and limestone, sloping down into a large swamp. Here there were several creeks, the

banks of which were covered with dense vegetation, intermixed with tropical ferns of various kinds. The country was beautiful, and it led into a succession of ravines separated by walls of sandstone. After passing through several, Stuart and his party came to a high precipice, which they had some difficulty in descending. It was close to a stream which flowed northwards, whose banks were fringed with palms. Stuart followed it up, thinking that it was the South Alligator River. It proved to be a branch of the Adelaide. On July 18th the main channel of the Adelaide was struck. From this date to the 24th the travelling was not bad; that is, it would not have been bad, if the condition of the horses had been reasonably good, or if the men of the party had good or fresh food. Water, however, was plentiful, and grass abundant. On the 24th, Stuart started from a creek named Thring's Creek, which was fed by a fresh-water marsh in lat. 12° 22′ 30″ S., on a due north course. A ride of about eight miles and a half brought them in sight of the sea. Thring was the first to discover it, as he was in advance of the party. He called out "The sea!" as the party emerged from a scrub through which it had been necessary to clear a track. On hearing Thring, the party gave "three long and hearty cheers." Stuart's diary tells the story thus:—"The beach is covered with a soft blue mud. It being ebb tide, I could see for some distance, and found it would be impossible for me to take the horses along it. I therefore kept them where I had halted them, and allowed half the party to come on to the beach and gratify themselves with a sight of the sea, whilst the other half remained to watch the horses until their return. I dipped my feet and washed my face and hands in the sea, as I promised the late Governor, Sir Richard MacDonnell, I would do if I reached it. . . . . After all the party had spent some time on the beach, at which they were much pleased and gratified, they collected a few shells. I returned to the valley, where I had my initials cut on a large tree (J. M. D. S.), as I intended putting my flag up at the mouth of the Adelaide." The spot that Stuart reached was in Van Diemen's Gulf, lat. 12° 13′ 30″ S. Stuart, however, could not get to the mouth of the Adelaide; his horses were too weak to go through the soft country which was before him. He therefore returned to the spot where he had left his party whilst he had gone on to look for a practicable route. This was at Charles' Creek. He caused an open space to be cleared, and selecting one of the highest trees, stripped it of its lower branches, and on the highest limb fixed the Union Jack, with his name sewn on the centre of it. At one foot south of the bole of the tree, an air-tight tin case was buried 8in. from the surface, containing a paper with the following notice:—"South Australian Great Northern Exploring Expedition. The exploring party under the command of

John McDouall Stuart arrived at this spot on the 25th day of July, 1862, having crossed the entire continent of Australia from the Southern to the Indian Ocean, passing through the centre. They left Adelaide on the 26th day of October, 1861, and the northern station of the colony on the 21st day of January, 1862. To commemorate this happy event, they have raised this flag bearing his name. All well. God save the Queen!" This was signed by Stuart and all the members of his party. On the tree on which the flag was raised, the inscription "DIG ONE FOOT S." was cut in the bark. The latitude given is 12° 14′ 50″ S.

On the following day Stuart set out on his return march. It is unnecessary to give the details of the journey. It is sufficient to say that the sufferings of all of the party were great. Want of sufficient food, over-exertion, and sickness told severely upon them. Stuart was so badly afflicted with scurvy that it was almost a miracle that he was brought back alive. The horses, too, on which the safety of the expedition absolutely depended, were in a deplorable state, but they got through their work wonderfully, considering all that they had suffered. They reached the Mount Stuart Station on the 10th December, 1862. The outward journey from Adelaide to Van Diemen's Gulf occupied 271 days, and the return march from the Indian Ocean to the Mount Stuart Station 137 days. Notwithstanding all the perils and privations, the fatigue and sickness which sorely tried the courage and endurance of all engaged in the exploration, Stuart brought them back without losing a man. The names of the party deserve to be recorded here. John McDouall Stuart (leader), William Keckwick (second in command), F. W. Thring (third officer), W. P. Auld (assistant), Stephen King, John Billiatt, James Frew, Heath Nash, John McGorrery (shoeing smith), and F. G. Waterhouse, C.M.Z.S (naturalist to the expedition).

Stuart was not the first to cross the Australian continent. As soon as it became known that he had succeeded in penetrating to the centre of Australia, a number of patriotic gentlemen in Victoria set to work to organise an expedition which should secure for that colony the honor of being the first to traverse Australia from sea to sea. The undertaking was planned upon a large scale, and no pains were spared to secure success. The expedition ended in disaster. The leader, Richard O'Hara Burke, lost his life. Wills, the second in command, also perished, and Gray, a prominent member of the party, also died. No one can deny the heroism of the men whose lives were sacrificed in this ill-starred undertaking. But the leaders were not bushmen, and had had no experience in exploration. Disunion and disobedience to orders, from the highest to the lowest, brought about the worst results, and all that remains now to tell the story of the failure of the undertaking is a

monument erected in one of the leading streets in Melbourne to the memory of those brave men whose lives were lost in consequence. The journey of Burke and Wills gained nothing for the colony which sent them forth into the desert, and the geography of Australia has profited little, if at all, by any discoveries made by them.

The expeditions of Sturt and of Stuart take the highest place in the annals of Australian explorations. To the former is due the discovery of the River Murray, by means of which the east and south-east portions of the continent have been opened up for settlement and trade; to the latter the solution of the problem of the vast interior from the Southern to the Indian Ocean. Sturt's wonderful river voyage undoubtedly led to the foundation of the colonies of South Australia and Victoria. Stuart's even more wonderful journey to Van Diemen's Gulf led to the construction of the overland telegraph line, which has united Australia with the rest of the civilised world. Sturt received a pension from the South Australian Government, and Stuart was rewarded by a grant of £2,000.

In 1873 Major Warburton, in command of a party organised by Mr. (now Sir) Thomas Elder, succeeded in crossing the interval between the South Australian boundary to Roeburne, on the West Australian coast, and was nearly perishing from want of water. The country he passed through was principally desert, unfit for occupation. Mr. Ernest Giles made explorations to the westward in 1875 and 1876, and succeeded in reaching the coast, and in 1891 Mr. D. Lindsay, in charge of another expedition (fitted out as those of Warburton's and Giles' were, at the cost of Sir Thomas Elder, G.C.M.G.), after considerable difficulty, pushed through to the settled districts of Western Australia. The full details of this journey have not yet been made public. Mr. Lindsay returned to Adelaide, leaving his party behind. Further explorations in this direction were for the present abandoned.

The explorations of which some account has been given above, comprise the most important that have been set on foot in South Australia. Other explorers, however, from time to time, have done good service in extending the general knowledge of the interior. It may be sufficient to mention the names of McKinlay, who led a party across from Adelaide to Queensland in search of Richard O'Hara Burke, the ill-fated leader of the Victorian expedition; Lewis, Winnecke, Tietkins, W. Gosse, and E. A. Delisser, who was the first to penetrate the country at the head of the Great Australian Bight, and who named the plains which lie to the north of that singular indentation in the coast, the "Nullarbor Plains"—from their being absolutely destitute of timber of any kind.

Early in 1866 Mr. McKinlay started from Escape Cliffs, in the Northern Territory, to explore the country adjacent to that settlement. He took with him Mr. R. H. Edmunds (surveyor to the expedition and second in command) and eight men, with a number of sheep and horses. The provisions were calculated for an absence of six weeks. Not long after they had started—about a fortnight—they were overtaken by floods, and detained in one spot for about two months. After the waters had subsided, the party moved on towards the East Alligator River, off the mouth of which the *Beatrice*, surveying schooner, was expected to be in waiting to carry them back to the settlement. Various accidental circumstances retarded their progress so much that it was not until the first week in June that they came to the river. Their provisions were all exhausted. Several of their horses had died, and others had to be killed for food. The men were in the worst of health from overwork and starvation, and the horses which remained alive were unable to go much further. The state of affairs was so desperate that McKinlay at one time seriously considered that the best thing would be for each man to shift for himself, and get back to Escape Cliffs if he could and as he could. That idea was soon abandoned. After consultation with Mr. Edmunds, it was agreed that the horses should be killed, their flesh jerked for food, and that a punt should be constructed out of saplings, of which there was abundance at hand, and covered over with the hides of the horses and the canvas of a tent which they had fortunately brought on with them. The work of constructing this punt occupied Ryan and Tuckwell, under the superintendence of Mr. Edmunds, from the 9th to the 29th of June. Everything about this novel craft was of the most singular kind. The oars were saplings, and the blades were fashioned out of the ironwork of the saddles, which were broken up for the purpose. The steering apparatus was a long sapling, with a blade somewhat similar to the oar blades. The anchor was a bag of old horseshoes and iron scraps. The provisions consisted of dried horse flesh. As the animals from which it was procured were in the most wretched condition, the meat was nauseous and almost devoid of nutriment. Some water was carried in canvas waterbags, and what was intended for the main store was put into an air bed, which had been provided for any extreme case of sickness. Before the party could get away they were attacked by a large number of blacks, who set fire to the grass and rushed at them with spears. It became necessary to fire upon them, and after a few shots the natives rapidly dispersed. The crew were got on board, and the voyage was commenced at a little before noon on the 29th June. They dropped down the river, moving very slowly, until Sunday, July 1st, when the

punt anchored, and the party went ashore to fill up the waterbags, &c. As the frail craft got clear of the river and became exposed to the ocean swell, it creaked and twisted like a basket, and it was necessary to keep two men constantly baling out the water, which came in almost as fast as it was bucketed out. The crew were kept constantly at work rowing, taking spells of an hour on and an hour off. Mr. Edmunds was navigator and steersman. The weather was fearfully hot and the water supply fell short, because that which was stored in the air bed had become impregnated with a horrible taste from the chemicals used in its manufacture, and was unfit for use. Those who tried to swallow it were instantly sickened by it. After many dangers from strong currents, sunken reefs, and adverse winds, which drove them out to sea, they came in sight of Escape Cliffs on the morning of the 5th of July. The stench from the rotting hides with which the punt was covered was intolerable, and none of the crew could sleep. They were followed night and day by numerous sharks, which sometimes struck against the oars as the men pulled along. It was quite clear that neither the crew nor the punt could last much longer. About noon they fortunately made the shore. As soon as the *Pioneer*, as the punt was called, touched the ground, it collapsed and sank. In all probability another hour at sea would have brought the voyage of the *Pioneer* and her daring little crew to a summary and wretched end. The dimensions of this strange craft were 22ft. x 9ft. and 2ft. 6in. deep. The construction and the voyage of the *Pioneer* were the desperate resources of desperate men. To remain where they were was certain death, either from starvation or at the hands of the natives. The punt offered a chance of life, although but a slender one. Fortunately the venture ended well.

A voyage almost as venturesome was undertaken from Escape Cliffs in 1865. Several persons who were at the new settlement were anxious to return to South Australia. There was no ship at the anchorage, and it was quite uncertain when any vessel would call in at Adam Bay. Mr. J. P. Stow, now Stipendiary Magistrate at Mount Gambier, proposed the plan of obtaining a boat and making the voyage in it. After some trouble a Swedish-built craft, 23½ft. long, 6ft. beam, and 2ft. deep, was secured, and the party prepared for the voyage. The little vessel had two masts with spritsails and a jib. The crew consisted of J. P. Stow, Arthur Hamilton, and William McMinn, surveyors (both now deceased), who conducted the navigation, John White, who was appointed sailing master, and James Davis, seaman, to assist. The balance of the crew was made up by two men belonging to the Government survey in the Northern Territory, named Charles Hake and Francis Davis. All of

them were anxious to leave the Territory, but one or two were actuated principally by a spirit of adventure and a desire to see the coast and visit as many places as possible on the route. The scheme was to visit Camden Harbor, about 600 miles from Adam Bay, and if a ship could not be met with there, to sail on till they came to some place where they might fall in with a vessel and take passage in her to Adelaide. The Camden Harbor project was soon abandoned, and the voyagers weary enough as time went on, at last reached Champion Bay, 300 miles north of Perth, the capital of Western Australia. The length of the journey was 2,600 miles. The monotony of the voyage was broken by occasional landings at various points on the main land and on islands as they sailed along the coast. At times they were exposed to heavy storms. They met with calms, adverse winds and currents, and on several occasions they were stuck upon coral reefs. They became short of provisions and water, as might have been expected, but occasionally caught fish, which proved a most welcome addition to the limited store of provisions on board. On one occasion they captured some strange fish, which they intended to eat, but as at the same time they got schnapper they took them and rejected the others. On arrival at Champion Bay they learned that the fishes they had rejected were poisonous. The *Forlorn Hope*, as the little craft was called, left Adam Bay on May 7th and reached Champion Bay on July 8th, 1865. Mr. Stow wrote an account of this remarkable voyage, which was read before the Geographical Society in London, by Sir Roderick Murchison. The whole of the paper is interesting, but especially those parts which treat of excursions on shore in new country between Cape Dombey, Cape Hay (west of Anson Bay) the archipelago off the north-west coast, Nicol Bay, with its aborigines, and Sharks Bay. The voyages of the *Pioneer* and of the *Forlorn Hope*, and the courage and endurance of the men who formed their crews, merit a distinguished place in the annals of South Australia, and certainly would do no discredit to the maritime history of any country in the world.

CHAPTER XII.

FORM OF GOVERNMENT—THE CONSTITUTION—THE PARLIAMENT—LEGISLATIVE COUNCIL—THE QUALIFICATION OF MEMBERS THE SAME AS THAT OF ELECTORS—TERM OF ELECTION—ORDER OF RETIREMENT—HOUSE OF ASSEMBLY—QUALIFICATIONS OF MEMBERS AND ELECTORS—ACTS TO BE ASSENTED TO BY THE GOVERNOR OR RESERVED—EQUAL POWERS OF BOTH HOUSES—MONEY BILLS TO ORIGINATE IN THE HOUSE OF ASSEMBLY—CLAIMS OF THE LEGISLATIVE COUNCIL TO ALTER MONEY BILLS—RESISTANCE OF THE HOUSE OF ASSEMBLY—A COMPROMISE EFFECTED—PRIVILEGES OF THE HOUSES—PARLIAMENT TO MEET ANNUALLY—LIMITATION OF THE POWERS OF PARLIAMENT—DURATION OF PARLIAMENT—RESPONSIBLE MINISTERS—POWERS OF THE GOVERNOR—MINISTERIAL CHANGES—PAYMENT OF MEMBERS—SALARIES—NO POWER OF IMPEACHMENT—PUBLIC EXPENDITURE—HOW REGULATED AND CONTROLLED—THE AUDIT COMMISSIONERS—EXCESS WARRANTS—STANDING ORDERS—ENGLISH PRECEDENTS—REGULATION OF SALARIES OF PRESIDENT AND SPEAKER—OFFICERS REMOVABLE ONLY BY VOTES OF THE HOUSES—STYLE OF MEMBERS OF THE LEGISLATURE—ALTERATION IN THE CONSTITUTION ACT—POWER OF DISSOLVING THE UPPER HOUSE—INCREASE IN THE NUMBER OF MEMBERS OF BOTH HOUSES—THE PROPORTION OF REPRESENTATION TO MALE ADULTS—ELECTORAL SYSTEM OF SOUTH AUSTRALIA—RETURNING OFFICERS—THEIR DUTIES—PROCESS OF CARRYING OUT AN ELECTION—VOTING PAPERS—THE LAW REGARDING THEM—PENALTIES—ABSENT VOTERS—THE SCRUTINY—DESTRUCTION OF VOTING PAPERS—COURTS OF DISPUTED RETURNS—THEIR APPOINTMENT, POWERS, AND FUNCTIONS—SIMPLICITY OF THE SOUTH AUSTRALIAN SYSTEM—ITS EFFECTIVENESS—CONDUCT OF ELECTORS—STATISTICAL RETURN OF ELECTIONS.

THE Government of South Australia is carried on by an Executive, responsible to Parliament. The Parliament consists of two Chambers—a Legislative Council and a House of Assembly. This form of Constitution was embodied in "An Act to establish a Constitution for South Australia, and to grant a Civil List to Her Majesty," passed by the old Legislative Council, in 1855, and reserved for the signification of the Royal pleasure, in January, 1856. As soon as the Queen's assent became known in the colony, the Act was immediately brought into force. Both of the Chambers were elective. The Legislative Council, which consisted of eighteen members, was elected by the whole province, constituting one single electoral district. No person could be elected unless he was of thirty years of age, a natural born or naturalised subject of Her Majesty, or legally made a denizen of the province, and who had not resided in the colony for the full period of three years. The qualification of an elector consisted in the possession of a freehold estate, either legal or equitable, situate within the province, of the actual value of £50, clear of all charges and incumbrances affecting

it; or, of a leasehold estate, in possession, situate within the province, of the clear annual value of £20, the lease being registered in the general registry office of the province, and having three years to run at the time of voting, or containing a clause enabling the lessee to become the purchaser of the land so leased; or occupying a dwelling-house of the clear annual value of £25, and in being registered on the electoral roll of the province for six months prior to the election.

After the first election, the members elected proceeded to ballot in order to determine the periods at which they should retire. The members were elected nominally for twelve years, but the six members whom the ballot had placed first on the list retired at the expiration of four years; the members who became elected in their places being placed at the bottom of the list. At the expiry of a second term of four years six more members retired, and the same order was observed in placing the newly-elected members. By this means periodical changes took place in the *personnel* of the Council besides those which might occur by reason of death, resignation, or other causes, such as lunacy, bankruptcy, &c.

The House of Assembly, consisting of thirty-six members, was chosen by electors on the basis of manhood suffrage without any property qualification whatever. All that was required was that each elector should be twenty-one years of age, a natural born or naturalised subject of Her Majesty, and registered on the electoral roll of any electoral district for six months previous to the election. The qualification for a person to be elected as a member of the House of Assembly was that he should be qualified and entitled to be registered as a voter in and for an electoral district within the province, and that he should have resided in the province for the full period of five years. A person who had been attainted or convicted of treason, or felony, or other infamous offence in any part of Her Majesty's dominions, could not be entitled to vote for the election of a member of either House, unless he had received a free pardon, or had undergone the sentence passed on him for such offence. No judge or officiating minister of religion was capable of being elected a member of either branch of the Legislature. If any person who is declared by the Act to be incapable to vote or sit in Parliament shall nevertheless be elected for any electoral district, his election and return are declared to be void to all intents and purposes. A person elected and returned contrary to the provisions of the Act, who presumes to sit or vote as an elected member of the Parliament, is liable to forfeit the sum of £500. Such sum may be recovered by any person who shall sue for the same in the Supreme Court of the province, or in any other court of record in the province having competent jurisdiction. All the Acts passed by the Parliament, before they can come into operation, require the assent

of the Governor on behalf of the Crown. The Governor may refuse his assent to any Bill, or he may reserve it for the signification of the Queen's pleasure thereon. The Governor has also the power to transmit by message to the Council or Assembly for the consideration of either, as the case may be, any amendment which he shall desire to be made in any Bill presented to him for Her Majesty's assent. All such amendments must be taken into consideration in such manner as is provided in the standing orders of the House to which the message may be sent. The powers of both Houses were made equal in all respects, except one. The first clause of the Constitution Act requires that all Bills for appropriating any part of the revenue of the province, or for imposing, altering, or repealing any rate, tax, duty, or impost, shall originate in the House of Assembly. The fortieth clause declares that it shall not be lawful for either House of Parliament to pass any vote, resolution, or Bill for the appropriation of any part of the revenue or of any tax, rate, duty, or impost for any purpose which shall not have been first recommended by the Governor to the said House of Assembly during the session in which such vote, resolution, or Bill should be passed. It might be inferred from this that the Legislative Council was under no restriction with regard to its treatment of money Bills once they came before it; but when the Council proceeded to exercise its presumed power in this respect, the House of Assembly resisted every attempt to alter such Bills as an encroachment on its privileges. In order to surmount the great difficulties which arose in consequence, a compact was entered into between the two Houses, by which it was agreed that the Council would not "amend" money Bills, but if it should require amendments the Council should formulate "suggestions" for alterations, and forward them to the House of Assembly, which would consider the suggestions and embody them in any Bill to which they might relate, and then forward the amended Bill to the Council for formal concurrence. Up to the present time this compact has accomplished the purposes for which it was made, and there seems to be no prospect of this convenient arrangement being disturbed.

The privileges of the two Chambers are identical, that is to say their privileges, immunities, or powers do not exceed those which were held, enjoyed, and exercised by the Commons House of Parliament in England, or the members thereof, at the time of the passing of the Constitution Act in South Australia.

An important restriction relating to amendments of the Constitution Act is contained in its thirty-fourth clause. It provides that it shall not be lawful to present to the Governor, for Her Majesty's assent, any Bill by which an alteration in the Constitution or House of Assembly may be

made, unless the second and third readings of such Bill shall have been passed with the concurrence of an absolute majority of the whole number of the members of the Legislative Council and of the House of Assembly respectively. Every Bill that has been passed under that clause must be reserved by the Governor for the signification of Her Majesty's pleasure thereon.

The powers of the Parliament are derived from the Imperial Act, the 13th and 14th of Victoria, cap. LIX., which authorised the establishment in South Australia of a Legislative Council of twenty-four members, one-third of whom were to be appointed by Her Majesty, and the remaining two-thirds elected by the inhabitants of the colony. The 15th section of that Act gave authority to the Governor of South Australia, with the advice and consent of the Legislative Council to be established in the colony under the Act, to make laws for the peace, welfare, and good government of the colony, provided that no such law should be repugnant to the law of England. The 32nd section of that Act also gave power to the Governor and Legislative Council of South Australia to establish therein, instead of the Legislative Council, a Council and a House of Representatives or other separate Legislative Houses, to consist respectively of such members to be appointed or elected respectively by such persons and in such manner as might be determined by Act, and to vest in such Council and House of Representatives, or other separate Legislative Houses, the powers and functions of the Legislative Council for which they might be substituted.

About ten years after the passing of the Constitution Act one of the judges of the Supreme Court declared that that Act was invalid, and that other Acts passed under its authority were repugnant to the law of England, or otherwise *ultra vires*. These judicial declarations gave rise to much trouble and caused great uncertainty, but the expressed doubts were removed by the passing of an Imperial Act, the 16th and 17th of Victoria, cap. LXXXIV., the second section of which enacted that all laws theretofore passed or purporting to have been passed by any colonial Legislature with the object of declaring or altering the constitution of such Legislature, or of any branch thereof, or the mode of appointing or electing the members of the same, should have, and were deemed to have had, from the date at which the same should have received the assent of Her Majesty, or of the Governor of the colony on behalf of Her Majesty, the same force and effect for all purposes whatever as if the said Legislature had possessed full powers of enacting laws for the objects aforesaid, and as if all formalities and conditions by Act of Parliament or otherwise prescribed in respect of the passing of such laws had been duly observed. Since that Act came into force the South Australian

Legislature has been deemed to be entitled to exercise most of the functions and powers which pertain to sovereign States.

The duration of the South Australian Parliament is three years; but the Governor, on the advice of his Ministers, or indeed *ex mero motu*, may dissolve it at any time. The Ministry was originally formed by five members of the Legislature—the Chief Secretary, the Attorney-General, the Treasurer, the Commissioner of Crown Lands, and the Commissioner of Public Works. Some years ago a sixth Minister was added to the number. These Ministers form the Cabinet, and conduct the general business of Parliament. They are *ex officio* members of the Executive Council. Five of them are in the House of Assembly and one in the Legislative Council. They are removable by an adverse vote of the House of Assembly, and they might, if a contingency arose to require such an exercise of the prerogative, be dismissed by the Governor. For this there is no precedent in South Australia. The Ministry formulates the policy submitted to the Legislature, and advises the Governor as to his course of action in all cases. It also forms the Executive Council, over which the Governor presides, and of which he is the President. All appointments in the public service are made by the Governor, by and with the advice of the Executive Council. The Governor possesses the prerogative of mercy, in the exercise of which he generally follows the advice of his Ministers. By a recent despatch from the Secretary of State he has been instructed to follow the advice tendered to him by his responsible advisers; at the same time he retains the power, if it should be deemed imperatively necessary, to act upon his own responsibility. In such a case he is required to report the matter to the Secretary of State, setting out in full the advice tendered to him by his Ministers with the reasons they have placed on record to support it, as well as the grounds upon which he has considered it necessary to deviate from their recommendation.

The administrative functions of the Ministers of the Crown are arranged in the following way:—The Cabinet consists of six responsible Ministers, who have respectively the management and superintendence of certain branches of the Public Service, and of the departments connected therewith. The Chief Secretary is the ordinary channel of official communication between the Ministry and the Governor. He is the principal executive officer of the Government, and has under his special control the undermentioned departments and offices:—

Aliens	Civil Service Examinations
Central Board of Health	Colonial Surgeon
Census	Commissioner of Audit
Chamber of Manufactures	Destitute Board

Fire Brigades	Naval Defences
Gaols and Prisons	Police
Government Printer and Comptroller of Stationery	Public Charities
Government Statist	Quarantine
Hospitals	Registrar-Genrl. of Births, &c.
Kerosene Inspectors	Royal Commissions
Lunatic Asylums	Sheriff
Military Defences	State Children's Council
	Vaccination

The Chief Secretary also corresponds with the Government of other colonies, the Government of India and its dependencies, the Judges of the Supreme Court of South Australia, the President of the Legislative Council, Speaker of the House of Assembly, Clerk of Executive Council, Clerks of both Houses of Parliament, and Consuls of Foreign States.

The Attorney-General is the chief Law Officer of the Crown, and has under his immediate superintendence the following departments and officers, &c., who communicate with him as their responsible head on all matters connected with their several duties:—

Benches of Magistrates	Official Receiver
Commissioner of Inland Revenue	Public Trustee
Commissioner of Insolvency	Registrar-General of Deeds
Commissioner of Patents	Registrar of Trade Marks and Copyright
Coroners	Returning Officer of the Province
Crown Solicitor	Stipendiary Magistrates
District Returning Officers	Supreme Court Department
Justices of the Peace	
Local Courts of Insolvency	

He also conducts all correspondence with the public on all matters connected with his own branch of the service.

The Treasurer is the responsible head of the Financial Department of the Government, and has under his special superintendence the departments and officers named below:—

Agent-General in England	Marine Board
Chamber of Commerce, &c.	Northern Territory
Customs Department	Oyster Fisheries
Distillation	Public Debt
Government Auctioneer	Savings Bank and Banking Institutions
Harbors and Lights	Stamp Duty Department
Land and Income Tax Department	

He conducts all correspondence with the public on matters connected with his own branch of the service. He also considers all matters relating to the finances of the colony, and all public business relating to

the Northern Territory, and communicates solely with the Agent-General in London, either by cable or letter, in all public matters. He has also the management of the Colonial and Imperial Pensions Department in South Australia.

The Commissioner of Crown Lands and Immigration is the head of the Territorial Department of the Government, and has also under his management all arrangements connected with immigration. He is authorised to correspond direct with the emigration authorities in England, and has under his control the departments, officers, and boards, &c., which are hereunder mentioned:—

Corporations	Inspector of Mines
Credit Lands Department	Issuers of Crown Lands Licences
District Councils	Land Boards
Gold Mining	Registrars of Dogs
Government Geologist	Superintendent of Cemeteries
Immigration	Surveyor-General
Inspector-General of Roads	Valuator of Runs
Inspector of Working Men's Blocks	Wild Dog Destruction
	Woods and Forests

The Commissioner also conducts all correspondence with the general public affecting his department of the Public Service.

The Commissioner of Public Works superintends the correspondence of the Public Works Department, and has control over the several boards and departments which are named below :—

Engineer-in-Chief, and Engineer of Harbors and Jetties	Public Works and Buildings
	Railways and Tramways
Public Supply Department	Waterworks and Sewers

The Minister of Agriculture and Education transacts all public business connected with public education, and corresponds with the council of the University of Adelaide. He has also control over the undermentioned departments :—

Aborigines	Post Offices and Telegraphs
Agricultural Bureau	Poundkeepers
Agricultural College and Experimental Farm	Public Library, Museum, and Art Gallery
Agricultural Societies	School Boards of Advice
Botanic Garden	School of Mines
Inspector-General of Schools	Stock and Brands Department
Institutes	Zoological Gardens
Observatory	

The changes of Ministry since the Constitution Act came into operation have been numerous. In thirty-six years there have been forty-two

new Cabinets, besides some reconstructions; the average life of each Ministry being about ten months. The members of both Houses of Parliament are paid £200 a year each for their services, but on becoming Ministers of the Crown this sum merges into the Ministerial salary. The Governor receives £5,000 per annum, and each of the Ministers £1,000 a a year. The Constitution Act contains no power of impeachment. If it should happen that any Minister of the Crown were guilty of malversation in his office, or other grave misdemeanor, he could be dealt with only, according to his offence, under the criminal law as far as it applied to his case, and he would be tried before the Supreme Court of the province.

The public expenditure is incurred under the authority of Parliamentary votes, as set out in the annual Appropriation Bill. No warrant for the expenditure of public money is valid unless the warrant is signed by the Governor and countersigned by a responsible Minister. The expenditure of the different departments is controlled by the Ministers who have charge of them. From them the necessary authority for the outlay of money proceeds in the first instance. When the expenditure has been incurred the accounts are investigated by the Commissioners of Audit, of whom there are two, and who are removable only on addresses to the Governor from both Houses of Parliament. These Commissioners are bound to report to Parliament once in every year on the state of the public accounts. In cases of emergency, or if Parliament is out of session, the Governor may authorise the expenditure of money for which there is no vote, or, in the event of a vote not being found sufficient for the service for which it was granted, he may sanction the issue of an excess warrant to provide the necessary funds. Expenditure authorised in this way is brought under the notice of the House of Assembly as soon as practicable after Parliament has assembled.

The proceedings of both branches of the Legislature are regulated by standing orders adopted by them and approved by the Governor. These standing orders are, to a great extent, similar to those in force in the British House of Commons, as far as local circumstances admit. The decisions of the President of the Legislative Council and of the Speaker of the House of Assembly follow as closely as possible the decisions of the Speaker of the House of Commons and the precedents which are established in that Chamber. Members of the Legislature vacate their seats on accepting any office of profit or pension under the Crown; but they are not obliged to do so on being appointed members of a Ministry. Their seats also become vacant if they fail to attend for two consecutive months without the permission of that branch of the Legislature in which they sit, or take any oath or make any declaration of allegiance or adherence to any foreign power, or do or concur in or adopt any Act

whereby they may become subjects or citizens of any foreign State or power, or shall become bankrupt or take the benefit of any law relating to insolvent debtors, or become public defaulters, or be attainted of treason, or be convicted of felony or any infamous crime, or become of unsound mind. The conditions under which seats become vacant are the same in substance for both houses of Parliament, although the clauses in the Constitution Act in which they are set out differ to some extent in their wording. The salary of the President of the Legislative Council is required to be at least equal to that of the Speaker of the House of Assembly, and the salaries and allowances of the officers of the Council the same as those of the corresponding officers in the House of Assembly. The Chief Clerk of the Council or of the Assembly can only be removed from office by vote of the House of which he may be an officer. The Chief Clerk of the Legislative Council is Clerk of the Parliaments. The salaries of the Hon. President of the Council and Speaker of the House of Assembly are voted annually in the Estimates, and amount to £600 a year each. The members of the Legislative Council are styled Honorable; the members of the Assembly assume the style of M.P. Ministers are all designated Honorable, and those who have served the Crown for three years are entitled to retain the title, but only within the limits of the province. A similar rule obtains in the other Australian colonies.

Since the passing of the Constitution Act in 1855-6, the law has undergone some modifications. In 1873 the number of members of the Assembly was increased from thirty-six to forty-six. The character of the Upper House has also been altered. In 1881 an Act was passed to amend the Constitution Act, and under it the province was divided into four electoral districts, each of which was represented by six members. This brought up the number of members to twenty-four, instead of eighteen. Of these twenty-four members the eight first on the list were required to retire at intervals of three, six, and nine years, and two other members for each district to be elected in their stead. As vacancies occur by reason of death, resignation, or other cause, they are filled by the election of members for the districts which were represented by the persons who retire. This plan was adopted in order to render the Council more in accord with public opinion than it had proved to be under the system by which members had been returned by the whole of the electors of the province voting as one district. Local representation to some extent was secured by the alteration; but still there was no power to dissolve the Upper Chamber, as the House of Assembly could be dissolved, in the event of its proving to be unmanageable by the Ministers, or out of harmony with the public opinion of the time. Accordingly a clause was embodied in the new Act, which provided that

whenever any Bill should have been passed by the House of Assembly during any session of Parliament, and the same, or a similar Bill with substantially the same objects and having the same title, should have been passed by the House of Assembly during the next ensuing Parliament, a general election of the House of Assembly having taken place between such two Parliaments, the second and third readings of such Bill having been passed, in the second instance, by an absolute majority of the whole number of members of the House of Assembly, and both such Bills should have been rejected by or have failed to become law in consequence of any amendments made therein by the Legislative Council, it should be lawful for, but not obligatory on, the Governor to dissolve both the Legislative Council and the House of Assembly, whereupon all the members of both Houses would vacate their seats, and new members be elected to supply the vacancies so created. The Governor, however, has an alternative, which is to issue writs for the election of one, and not more than two, members for each district of the Legislative Council. This being done, no writs can be issued for any election for the Legislative Council as long as the number of members remains at or above the number of twenty-four. The Act has been in force now for about ten years, but no occasion has arisen for the exercise of the extraordinary powers which it vests in the Governor, or rather in the Ministry of the day. The Act was reserved for the Royal assent, which was signified in due course. In the meantime a Bill was introduced which increased the number of members of the House of Assembly, which restored, to some extent, the proportion of representation in each Chamber, which was established in 1856. The colony was divided into twenty-six electoral districts, each returning two members, and subject to the same conditions of election and dissolution as the first House of Assembly. Two more members were subsequently added (in 1888) to represent the Northern Territory, which previously had not been directly represented in Parliament. The Assembly, therefore, now consists of fifty-four members, which gives a representation of one member to every 1,363 adult males in the colony, according to the last census.

The fundamental principles of the electoral system of South Australia are manhood suffrage, vote by ballot, and equal electoral rights. By "manhood suffrage" is meant the right of every male person of full age to become an elector on the registration of his name on the electoral roll. The term "vote by ballot" means a mode of exercising the franchise which precludes the possibility of any one discovering how the elector has voted, and by "equal electoral rights" is meant that for either House of Parliament no elector can have or exercise more than one vote. Although the ballot system is in force in the other Australian colonies, the one man one

vote system is not, and the suffrage in those colonies is more restricted than it is in South Australia. The administration of the electoral laws is placed in the hands of Returning Officers appointed by the Governor by commission under the great seal of the colony, all of whom are removable by him. The electoral business of the Legislative Council, although nominally under the charge of four district returning officers, is carried out by the returning officers for the House of Assembly, who are deputy returning officers for the Legislative Council. These officers compile the electoral rolls for their divisions and districts, hold the courts of revision quarterly for the purgation of the rolls, and they preside over all the elections which are held in their divisions and districts.

A description of the process of carrying on an election may not be devoid of interest. A writ issued by the Governor for a vacancy in the Legislative Council, or by the Speaker of the House of Assembly for a vacancy in that Chamber, is directed to the returning officer whom it may concern, and on receiving it he gives a statutory notice of the day and place of nomination. The returning officer for a Legislative Council district at once forwards a copy of the writ to his deputy returning officers, who, after giving certain notices, hold the election on the date specified therein, and, at the close of the polls held in their divisions, return the copies of the writ, with indorsements of the names of the candidates and the number of votes polled for each to the Returning Officer for the Legislative Council district. When the district returning officer has received all the copies of the writ, he totals the numbers and makes his return accordingly. At the time and place indicated in the writ he attends and reads the nomination papers which he has received. These nomination papers must be signed by two duly qualified electors, and by the candidates, who are required to signify in writing their consent to act if elected. If there are more candidates than vacancies, the proceedings are adjourned to a date and place mentioned in the writ, when a poll of the electors is taken. The hours of polling are from 8 a.m. till 7 p.m. Shortly before the opening of the proceedings the returning officer exhibits the ballot-box open, to show that it is empty. The inner lid is then closed down, locked, and sealed, so that nothing can be put into it except through an opening, like the slit in a letter-box. This is so contrived that a paper once inserted in it cannot be withdrawn. When an elector comes to vote he announces his name and address to one of the poll clerks present, who refers to the roll to see that he is registered, and has been so for six clear months before the date of the election. Having found the name, the poll clerk marks it off from the printed roll which he has before him, and then hands the elector a voting paper containing the names of all the candidates, with a blank

square printed opposite to each of them. This voting paper is initialled by the presiding officer. On receipt of the paper the voter retires into one of the compartments prepared for the purpose, and there, alone and unseen, records his vote by making a cross in the square opposite to the name of the candidate for whom he intends to vote. He then folds his paper, so that his mark cannot be seen, and hands it to the presiding officer, who deposits it in the ballot-box, where it remains until the time of the scrutiny. At 7 p.m. the polling-booth is closed, and no further votes are taken, except from those electors who may be in the booth at the time of closing, but whose votes have not previously been recorded.

The voting papers are the property of the returning officer, and any person taking one away, or refusing to deliver it up when called upon by that officer to do so, is punishable as for a misdemeanor. An elector who accidentally defaces a voting paper, so as to render it useless, may receive another voting paper on surrendering the first one to the returning officer, who forthwith destroys it by burning. A person who is blind may, by permission of the returning officer, take some person into the voting compartment to mark his paper for him. If a person who represents himself to be a particular elector named on the roll applies for a voting paper after another person has voted in the same name, the applicant, upon answering certain questions set out in the Electoral Act, is entitled to receive a voting paper, and to make use of it as if no vote had been recorded for the name under which the applicant claims. A person making a false answer to any of the questions is liable to prosecution, and a person who wrongfully and with intent to commit a fraud has voted in the name of another person is also liable to prosecution.

The law with regard to tampering with or improperly using voting papers is very stringent. Any person who forges or fraudulently defaces or destroys any voting paper, or the initials marked on it, or without due authority supplies a voting paper to any one, or fraudulently puts into the ballot-box any paper other than the voting paper which he is authorised by law to put in, or fraudulently takes out of the polling booth any voting paper, or without due authority destroys, opens, or otherwise interferes with any ballot-box or voting papers then in use for the purposes of the election, or refuses to deliver to the returning officer or his deputy any voting paper in his possession, whether he shall have obtained such voting paper for the purpose of recording his vote or not, is liable to prosecution for misdemeanor, and may be imprisoned and kept to hard labor for any term not exceeding six months in some cases, and two years in others.

In elections for the Legislative Council an elector, who may be absent from his division on the day of election, may obtain from the returning

officer of the division a certificate which will enable him to vote at any polling place within the Legislative Council district, but only on surrender of the certificate.

Recently a new law relating to absent voters has come into force. An elector who knows that he will be absent from the colony at the time of a given election, may, after the issue of the writ, obtain from the returning officer of the district a certificate that he is registered upon the electoral roll, and is entitled to vote at the coming election. He is required to make a declaration before the returning officer that he is the person named in the register of voters, and that he makes the application believing that he will be absent at the time of the forthcoming election. The returning officer is entitled to put to the applicant certain questions in order to ensure proper identification, and if the elector does not answer them in a satisfactory way, the certificate is refused. If the questions are properly answered, the elector receives a certificate printed on the back of an envelope, and a voting paper with a counterfoil attached, and also another envelope addressed to the returning officer, in which the voting paper enclosed in that envelope are afterwards to be placed and sealed up. On receipt of these documents the elector proceeds to some post office, and, in the presence of the postmaster only, signs his name on the counterfoil, on the back of the voting paper, and presents the voting paper folded up to be witnessed by the postmaster, and stamped with the letter stamp of the day and date then being used at the post office. On the voting paper the elector must previously write the name of the candidate for whom he votes. The voting paper is then folded up and placed in the envelope and sealed and the sealed envelope is enclosed in the cover addressed to the returning officer, and is delivered to the postmaster, who forwards it to its address in due course. At the scrutiny these papers are deposited in a box by themselves, and at the proper time the signatures of the electors are verified. and the voting papers allowed or disallowed, according to certain provisions in the Act. The process is somewhat intricate. The Absent Voters Act was passed principally in the interest of seafaring persons at the various ports in the colony, but it has been made use of only to a very limited extent.

When the poll has closed the ballot boxes are shut, locked, and sealed, and within one hour after, the scrutiny commences. The candidates are represented by one scrutineer each at the counting of the votes, though at the polling-booth two are allowed to each candidate. Their appointments are made by the candidates in writing, and these appointments are required to be delivered to the returning officer before the opening of the poll. A strict account is kept of all the voting papers issued, and the number in the ballot boxes should tally with the number

delivered by the poll clerks with the addition of the number that have voted on travelling certificates, and those papers issued to persons in whose name a vote has been previously recorded. There are very few occurences of the latter kind. The returning officer counts the voting papers and decides which are informal or otherwise. Informal papers are not counted. All papers which have been objected to as informal must be kept by the returning officer until a sufficient time has elapsed to enable an appeal to be made, if thought desirable by any of the candidates, to the Court of Disputed Returns. All the rest are forthwith destroyed, and the writ is duly indorsed and returned to the proper authority.

The Courts of Disputed Returns are constituted by four members of the Legislative Council or House of Assembly, as the case may be, presided over by one of the Judges of the Supreme Court of the province. These courts have power to inquire into all cases brought before them respecting disputed returns of members to serve in either House, whether the disputes arise out of alleged error on the part of returning officer, or out of the allegation of bribery and corruption against any person concerned in any election, or out of any other allegation calculated to affect the validity of the return. They regulate their own forms of procedure, and are guided only by the real justice and good conscience of each case. They cannot sit for more than five days, exclusive of adjournments, unless by leave of the House by which they are appointed. If no decision has been arrived at by a majority within the five sitting days, or any enlarged period, the president of the court is empowered to pronounce a decision upon the evidence then before the court, and that decision is final and conclusive, and without appeal. The courts have no power to inquire into the correctness of any electoral roll, nor into the qualifications of proposers of candidates, nor into the qualifications of persons whose votes may have been either admitted or rejected on the day of election, but simply into the identity of the persons, and whether their votes were improperly admitted or rejected, assuming the roll to be correct. All complaints of the undue return of members must be in the form of petition to the Legislative Council or House of Assembly, either by a candidate at the election, or by not less than one-tenth of the whole number of electors who were entitled to vote at the election; and the signature of each elector must be verified by two witnesses, whose place of abode and occupation must be given. This provision effectually bars any petition from the electors. Further it is required that £50 shall be deposited with the President of the Council or Speaker of the Assembly, as security for costs. No petition can be noticed which shall not have been presented within twenty-one days from the day of election, or one

week from the meeting of Parliament, whichever event happens last. The petition must be referred to the Court of Disputed Returns within ten days after it has been duly received. The courts have power to declare a candidate duly elected who was not returned by the returning officer as duly elected, or to declare a person unduly elected who was returned as elected, or otherwise to declare the election to be null and void, in which case a writ for the holding of a new election is issued without delay.

The simplicity and effectiveness of the South Australian electoral system has attracted much notice in other colonies and other countries, and it has been adopted with most satisfactory results in several of the United States of America*. It is not entirely free from defects, but, on the whole, it works admirably, and has stood the test of thirty-six years' experience. The electors, for the most part, are well acquainted with its operation, and up to the present time it has given general satisfaction. Elections of late years have been held on Saturdays, when nearly all business establishments close early, so that almost every one has an opportunity of exercising his electoral rights. The elections are carried on without turmoil or disorder. The writer of this, who has had some thirty years' experience as a returning officer, during a great portion of which he has controlled the electoral business of the largest electoral district in the province, has never known a single case of riot or disturbance. This peaceable state of affairs is due absolutely to the ballot as it is used in South Australia. Party feeling runs high here, as it does elsewhere, but it never runs into excess. No more police are required at elections than are needed at other large public gatherings, and the amount of drunkenness, common in other countries on similar occasions, is infinitesimal. Except for the assembling of small groups of people outside the chief polling-places, and a somewhat increased activity amongst cabdrivers, which a stranger would scarcely notice, little appears to show that anything unusual is going on.

The general elections for the House of Assembly take place in the ordinary course of events at the expiration of every three years. The last was held in April, 1890. The number of adult males who were entitled to be registered on the electoral rolls at that time was estimated at 82,801, the number actually registered and entitled to vote was 69,921, or a proportion of 84·44 per cent. Thus nearly 16 per cent. of the adults in the colony who could claim the franchise were not registered. It will be borne in mind, however, that in order to secure the franchise the elector must apply personally or in writing to the returning officer of the district wherein he requires to be registered,

* The *Review of Reviews* (Sept., 1891) publishes a map which shows that it is in force in twenty-five States in North America.

and in which he must be a resident, and he must furnish the particulars which are set out in the Electoral Act of 1879. In cases where this is not done, or is done in such a manner as to withhold from the returning officer the information required by law, the name is not placed on the roll. The same holds good with regard to claims for registration on the rolls of the Legislative Council; so that if any person fails to acquire the franchise the failure is attributable to error, omission, or neglect on his part. The name of an elector may be erased from the roll of the Legislative Council if he loses the qualification prescribed by law, or ceases to reside within the district wherein he is registered. Non-residence also leads to the erasure of the name of an elector for the Assembly. A returning officer, however, cannot remove any name from his list without sending a notice of objection to the last known place of abode of the elector, to whose vote exception is taken, and affording him an opportunity of defending his franchise before the court of revision.

An elector who removes from one electoral district to another may obtain from the returning officer of the district which he leaves a certificate that his name has been registered for six months. This certificate entitles him to be placed upon the electoral roll of the district to which he removes, and he is immediately entitled to vote at any election which may take place after the date of the transfer. Certificates of transfer are not issued within four clear days of any election for the Legislative Council, nor after the issue of a writ for an election for the House of Assembly, until after the election has taken place.

At the general election in 1890 69,921 persons were on the electoral roll, and of these 38,463 exercised their franchise. This number was 55·01 per cent. of the electoral strength of the colony. At the election for the Legislative Council which occurred in April, 1891, there were 33,265 electors on the roll, and of these 18,490 recorded their votes. This gives a proportion of 55·59 per cent. The number of qualified electors for the colony in the House of Assembly roll as stated was 69,921 in 1890, and of these 33,265 were also on the Legislative Council rolls. These figures show a proportion of 47·57 per cent. of the adult males who were electors qualified for both the Legislative Council and House of Assembly.

At the time of taking the census in April, 1891, entirely new electoral rolls were compiled. From these it appears that there are now on the rolls—subject to additions and erasures from time to time—69,331 electors for the House of Assembly, and 33,668 electors for the Legislative Council, thus 48·56 per cent. of the total electoral strength of the province is entitled to participate in elections for the Legislative Council.

CHAPTER XIII.

ADMINISTRATION OF JUSTICE—THE SUPREME COURT—ITS POWERS—THE JUDGES—CIRCUIT COURTS—THE COURT OF APPEALS—THE INSOLVENCY COURT—LOCAL COURTS - SPECIAL MAGISTRATES—CORONERS—ABOLITION OF GRAND JURIES—THE PUBLIC PROSECUTOR—MATRIMONIAL CAUSES—OFFICERS OF THE SUPREME COURT—LAWS IN FORCE IN SOUTH AUSTRALIA—THE CLAIMANTS RELIEF ACT—THE LEGAL PROFESSION—THE PREROGATIVE OF MERCY—DEATH SENTENCES—CAPITAL PUNISHMENTS EXTREMELY RARE—THE CRIMINAL POPULATION—THE YATALA LABOR PRISON—THE STATISTICS FOR TEN YEARS ENDING IN 1890—LARGE AND CONTINUAL DECREASE OF CRIME IN SOUTH AUSTRALIA—STATISTICS—MINOR OFFENCES—STATISTICS RELATING TO THE ADELAIDE GAOL—NUMBER OF GAOLS IN THE PROVINCE—PROPORTION OF CRIMINALS TO THE POPULATION—IMMORALITY IN ADELAIDE AND IN OTHER AUSTRALIAN CAPITALS—LITIGATION—TESTAMENTARY CAUSES—INSOLVENCIES—LOCAL COURT SUITS—MANAGEMENT OF PRISONS—DIETARY SCALE OF PROVISIONS—THE POLICE FORCE—ORGANISATION AND DUTIES—DISTRIBUTION—PAY OF POLICE.

THE first court of gaol delivery for South Australia was held in Adelaide in May, 1837, at the office of the Resident Commissioner, before His Honor Sir J. W. Jeffcott, Her Majesty's Judge of the province.* On the last day of the same month an Act was passed in Council for the establishment of a court, called the "Supreme Court of the Province of South Australia."

The administration of justice in South Australia embodies all the legal principles and precedents which obtain in the mother country. The tribunals by which civil and criminal cases are determined have been modified, so as to meet and provide for conditions which are to some extent of local origin. The principal tribunal is the Supreme Court of South Australia, which is invested within the colony with all the powers that are exercised by the High Court of Justice in England. It is composed of a Chief Justice, a second and a third judge. There is no difference whatever in the jurisdiction of any of the judges—the Chief Justice and the second and third judges exercise equal power in all respects. The proceedings of the court are regulated by the Supreme Court Act of 1878, under the provisions of which law and equity are administered concurrently. By the Colonial Courts of Admiralty Act of 1880, passed by the Imperial

*Sir John Jeffcott joined a party to examine Lake Alexandrina; and on the 12th December, 1837, Captain Blenkinsopp, Sir John, and five seamen attempted to go through the Murray mouth into Encounter Bay for the purpose of coasting to the whaling station of Captain Blenkinsopp. The boat was upset among the breakers, and Sir John, Captain Blenkinsopp, and two seamen were drowned. Sir John was succeeded by Charles Cooper, Esq., of the Temple.

Parliament (53 and 54 Vict., cap. 27), a new and original Admiralty jurisdiction has been conferred on the Supreme Courts of the British colonies, over which any of the Supreme Court judges may preside. The civil sittings of the Supreme Court take place six times in the course of the year, and the criminal sittings in the city of Adelaide are held at intervals of two months. For the trial of prisoners in the distant parts of the province circuit courts are held, which are presided over by the judges of the Supreme Court. The circuit courts in the northern parts of the colony are held three times in each year, and in the south-eastern parts twice in each year, on dates fixed by the Governor by proclamation. In South Australia no quarter nor petty sessions are held. The business which would ordinarily come before similar tribunals in England is disposed of either by the Supreme Court or by the magisterial courts which deal with minor offences. The Supreme Court sits *in banco* from time to time as circumstances may require, and the judges attend in chambers for the disposal of such business as may be brought before them. If occasion should arise the judges sometimes take a portion of the insolvency business. There is a local Court of Appeals, constituted by the Governor and the Executive Council of the province (with the exception of the Attorney-General and Crown Solicitor), which has power to receive and hear appeals from the judgments of the Supreme Court in all cases where the sum or matter at issue shall amount to £100; but the court is restrained from reversing any judgment of the Supreme Court founded upon the verdict of a jury of twelve men, and can only reverse, alter, or inquire into the judgments of the Supreme Court for error of law apparent on the record. There is a power of appeal to the Privy Council direct from the judgments of the Supreme Court where the sum or matter at issue is above the value of £500. A modification of the Imperial Judicature Act is in force in South Australia, so that the general law of procedure is substantially the same as that which prevails in England.

The Court of Insolvency in South Australia has very similar jurisdiction in South Australia to that of the Bankruptcy Court of England. It is presided over by a Commissioner, who is also Special Magistrate of the Local Court in Adelaide, and deals with all insolvency questions and matters relating to deeds of assignment and other cases which arise out of them and out of compositions between creditors and debtors. The court has power to adjudge the imprisonment of any insolvent for any term not exceeding three years for the commission of offences against the law of insolvency. This court sits whenever business requires it to do so.

Local courts, which are analogous to the county courts in England, are established in various parts of the province. They are presided over by

special magistrates, who (in some districts) have jurisdiction in insolvency. They are not commissioners of insolvency, but "special magistrates of local courts of insolvency" in the districts for which they have been proclaimed. Their jurisdiction and powers are the same as those of the Court of Insolvency in Adelaide. A special magistrate can by himself hear and dispose of cases which otherwise could be determined by not less than two justices of the peace. The special magistrates deal with the police cases which from time to time are brought before them. Each of the special magistrates transacts the judicial business of a very large district, and he travels from place to place, to sit on appointed days, in order to obviate the delay, expense, and trouble which would fall upon suitors if they, their witnesses, and counsel were required to attend at a fixed spot where an immovable court was established. Some of the local courts are held at intervals of three months; others at shorter periods. Some have only power to dispose of cases within the limited jurisdiction. The special magistrates are constantly on the move, for the districts are large and the court-houses many miles apart. A court of full jurisdiction is constituted by a judge of the Supreme Court with or without a jury, or by a special magistrate and two justices of the peace, or a special magistrate and a jury. Local courts of full jurisdiction have cognisance of all personal actions where the debt or damage does not exceed £490. Local courts of limited jurisdiction have cognisance of all personal actions where the debt or damage is not more than £20. Local courts of limited jurisdiction are constituted by special magistrates sitting alone or by two justices of the peace for the province. Where local courts are not proclaimed magistrates' courts may be held, at which resident justices of the peace dispose of police informations, petty cases on the criminal side, and summonses which arise from breaches of the by-laws of municipal corporations and district councils. One of the judges sits from time to time as the Local Court of Adelaide to hear appeals against magisterial decisions, &c. Every justice of the peace is a coroner, and can hold inquests on deaths or fires when reported to him by the police. The services of the justices as coroners are only called into requisition in country places where paid magistrates are not available. There is a coroner for the city of Adelaide, who holds inquests on all deaths and fires that occur within ten miles of the metropolis. Grand juries have been abolished for many years. All indictments proceed on information by the Attorney-General. The Attorney-General for the time being is at the head of the legal profession, and he advises the Government in all matters of unusual importance. The actual legal business of the country is transacted by the Crown Solicitor, who, being also public prosecutor, conducts all the public prosecutions which are brought

before the Supreme Court in its criminal jurisdiction. Occasionally he prosecutes in the police courts.

The laws that are in force in South Australia are the laws of England as they existed at the date of the foundation of the colony in so far as they apply to its circumstances; otherwise, with modifications that have been made in them to suit local conditions, with the addition of other laws which have been enacted by the Legislature, which are exclusively local in their operation. Some of those laws differ considerably from the English law, although they are not numerous. The criminal law is in most respects similar to the provisions of the Criminal Law Consolidation Act passed in England a few years ago. Murder is the only crime punishable with death. For all other offences penal servitude or imprisonment for various periods, either with or without hard labor, is prescribed. For some offences the judges may order criminals to be flogged. In trials for criminal offences, according to a recent alteration in the law, accused persons, as well as the husbands or wives of the accused, are permitted but not compelled to give evidence on oath. In such cases, like other witnesses, they are subject to cross-examination. In 1885 an Act was passed for the better protection of girls between the ages of thirteen and sixteen. No female under the latter age can give consent, and commerce with anyone under that age is punishable. The Act also renders punishable persons who trade on the immorality of girls, even up to the age of eighteen.

The Real Property Act was originated in South Australia by the late Sir R. R. Torrens in the year 1858, and has been adopted in all the Australian colonies, and also in New Zealand. It has been amended from time to time; but all the amending Acts have been repealed, and are now included in a consolidated Act passed in 1886. The objects of the Act are to simplify titles to land and to facilitate dealings therewith, as well as to secure indefeasibility of title to all registered proprietors, except in certain cases, amongst which are fraud, insufficient power of attorney, legal disability, erroneous inclusion of land by misdescription and rightful adverse possession when land is brought under the Act and the certificate issued. Provision is made for the protection of *boná fide* purchasers for valuable consideration.

Indefeasibility of title may be said to be the most important principle of the Act, the certificate being complete evidence of the title, and, with the exceptions mentioned, it becomes unnecessary in future transactions to inquire into the history of the property prior to the issue of the certificate. Where it is desired to bring land under the Act in the first instance, the applicant is required to surrender to the Registrar-General all his deeds and other instruments constituting or affecting his title, and to

give all required information on the subject. Where necessary precautions are taken by means of advertisements and the service of notices to protect the rights of interested parties. Any person claiming an interest in land advertised as intended to be brought under the Act may lodge a caveat with the Registrar-General. The certificate of title has indorsed on it all such incumbrances, liens, estates, or interests as the property was subject to at the time of the issue of the certificate. Later transactions, such as transfers, mortgages, and leases, are effected by simple registered instruments and, within certain limits, by indorsements on the certificates of title and in the register book. Trusts are recognised by the Act, but are not registered under it. They may, however, whether with respect to land under the Act or not, be declared by any instrument deposited with the Registrar-General for safe custody. All grants of land from the Crown are registered under the Real Property Act, and a married woman can hold property under the Act in her own right.

The marriage laws differ to some extent from those of England. Marriages may be celebrated by the Registrar-General, the Deputy-Registrar, and district registrars, and by officiating ministers of all religious denominations whose names have been ordered by the Governor to be entered on a roll kept in the office of the Registrar-General. Before any marriage can be celebrated the parties must either have obtained a certificate from the Registrar-General or a district registrar that fourteen days' notice has been given and that no authorised person has forbidden the issue of the certificate, or they must obtain a licence from the Registrar, his deputy, a district registrar, or from an officiating minister. After the certificate has been issued, or a licence has been granted, a marriage may be celebrated at any time within three months. A caveat may be entered by any person who objects to a marriage. If a caveat is entered the marriage cannot take place without due inquiry into the circumstances. A person under age must produce the written consent of his or her parent or guardian, unless satisfactory reasons are given for the non-production of such assent. Persons desiring to be married must sign a declaration to the effect that there is no legal impediment to the marriage A person making a false declaration is punishable as for a misdemeanor, and in the case of fraudulent marriage the guilty person may be made to forfeit all property accruing from the marriage. Persons unlawfully or fraudulently celebrating marriages are liable to prosecution. The fee for a marriage performed at the registration office is 10s. The cost of a licence issued by a registrar is £3. No scale is laid down for the charges made by officiating ministers. Under the provisions of the Deceased Wife's Sister Act a man is enabled to marry his deceased wife's sister or the daughter of a deceased wife's sister.

This provision is not in accordance with the English law. A woman cannot marry her deceased husband's brother. An Act similar to the English Married Women's Property Act has been in force in the province for some years.

The administration of the estates of deceased persons is under the Supreme Court in its testamentary jurisdiction. Since the passing of the Inheritance Act in 1869 there is no heir-at-law, and in cases of intestacy realty is distributable as personalty. The property of deceased persons is subject to probate and succession duties. These duties are levied under an Act which closely follows the English Succession Act (16 & 17 Vict., cap. 51), the main principle of which it adopts. It was amended by an Act of the South Australian Parliament passed in 1881, the chief purpose of which was to exempt estates of less than £1,000 in value from probate duties and also from succession duties in cases where estates passed to or for the benefit of the lawful children of the deceased. The following are the duties chargeable:—Probate of a will, or letters of administration with will annexed, when the effects are sworn to by the executor or administrator under £1,000, *nil*; above £1,000, 1 per cent. Letters of administration, without a will annexed, when the effects are sworn to by the administrator under £100, £1 10s.; under £200, £3; and so on up to £500, when the duty is £7 10s., and above that amount £1 10s. per cent. The succession duties are as under:—Estates under the value of £1,000, passing for the benefit of the lawful children of the predecessor, are exempt from duty; when the successor shall be the lineal descendant or lineal ancestor of the predecessor, on the value of the succession, 1 per cent.; where the successor shall be a brother or sister, or a legal lineal descendant of a brother or sister of a predecessor, £3 per cent.; where the successor shall be a brother or sister of the father or mother, or the legal descendant of the brother or sister of the father or mother of the predecessor, £5 per cent.; where the successor shall be a brother or sister of the grandfather or grandmother of the predecessor, £6 per cent; and where the successor shall be in any other degree of collateral consanguinity to the predecessor than is heretofore described, or shall be a stranger in blood to him, £10 per cent. In assessing real estate the duty is charged on two-thirds of the amount arrived at by using the English tables.

In 1891 a new Act was passed "to consolidate and amend the Law relating to the Estates of Deceased Persons," &c. (No. 537 of 1891). The principal portions of this Act are technical, and relate to jurisdiction and procedure and to the vesting and administration of estates. Some new principles are embodied in it, which are briefly noticed. Any will made, duly executed according to the provisions of the Act, whereof an

executor or executors shall be appointed, may, at any time previous to the death of the testator, be deposited for safe custody with the Registrar of Probates by the testator or certain persons acting on his behalf. It must be enclosed in a packet sealed by the Registrar, and indorsed with the names of the testator and executor or executors, the date of the will, &c. Every will so deposited must be executed by the testator as required by law, and one of the attesting witnesses must be the Registrar, a district registrar, a notary public, a solicitor, or a commissioner for taking affidavits in the Supreme Court. A deposited will may be withdrawn by the testator or by someone authorised by him. On the death of a testator whose will is in the custody of the Registrar any executor of the will may apply for probate of such will, which is granted under certain regulations. Land, on the death of a testator, vests in his executor or administrator as if it were a chattel real, and the proceeds of the land, when sold, are disposable and distributable for the payment of the debts and liabilities of the owner as if such land had been chattel real. No widow is entitled to dower nor husband to his curtesy out of any land passing under the preceding section. On the death of a married woman, and subject to certain provisions in the Act, her estate, so far as not devised or otherwise disposed of, and subject to any mortgage, trust, or equity affecting it, shall be distributed in the following manner:—If she shall have left any child or remoter issue surviving her, her husband shall be entitled to one-third of her estate; if she shall not have left any child or remoter issue surviving her, the husband shall be entitled to one-half of the estate. Any person dying after the day the Act came into force, and leaving a widow or widower, but no issue, so far as the estate shall not be devised or otherwise disposed of, and subject to any mortgage, trust, or equity affecting it, and to the rights of creditors having claims against it, the estate shall, in all cases where its net value does not exceed £500, belong to the widow or widower absolutely. Where the estate exceeds £500 the widow or widower shall be entitled to £500 thereof absolutely, and shall have a charge upon the estate for that amount, with interest from the date of the death of the intestate at 8 per cent. per annum until payment. The provision for the widow or widower thus intended to be made shall be in addition and without prejudice to her or his share in the estate remaining after payment of the sum of £500. As regards succession to any estate under the total or partial intestacy of a woman, her illegitimate child shall have the same right and title as if he were legitimate; and, so far as regards succession to any estate under the total or partial intestacy of an illegitimate child, his next of kin on his mother's side shall have the same right and title as if he were legitimate. All specialty and simple contract debts of deceased persons

stand in equal degree. Devisees of real estate cannot claim payment of mortgage out of the personal assets of the deceased. The executor or administrator has no right of retainer; a creditor who has obtained judgment against the executor or administrator cannot, by reason of his judgment, have priority over other creditors; and legal assets are, subject to the Act, administered in the same manner as equitable assets.

The insolvency law (Act No. 385 of 1886) follows the principles of the measure introduced into the Imperial Parliament by Mr. Chamberlain. It imposes on the Insolvency Court the duty of watching insolvencies for the benefit of the public, and, where necessary, of punishing insolvents; and also of seeing to the proper distribution of insolvents' estates. In place of the Official Assignee the Act creates the office of Official Receiver, whose duties, in addition to those of the Official Assignee, are also to watch the trustee or trustees appointed at the instance of the creditors. He acts as sole trustee till the creditors appoint one. The trustee manages the estate, and must make returns to the Official Receiver, who watches the administration of the estate. Until a trustee is appointed the Official Receiver manages the estate. A trustee when appointed must realise the estate, but must not retain the money in his own hands. A debtor cannot make a deed of assignment without the consent of his creditors, a meeting of whom he must call before executing any such deed. If the creditors do not pass a resolution authorising the debtor to execute the deed, or if he should fail within a specified period to execute it pursuant to such resolution, an act of insolvency is deemed thereby to have been committed, provided the creditors, within a time fixed by the Act, present a petition for adjudication of insolvency. With the consent of a majority in number, and two-thirds in value, the court may order that a composition be accepted in satisfaction of the debts of the insolvent, or that a scheme of arrangement of the insolvent's affairs be approved. Before any such order is made the Official Receiver must make a report satisfactory to the court as to the composition or scheme; and the court in dealing with the matter will take into consideration the character of the proposed arrangement, and also the conduct of the insolvent. The Act, whilst giving large powers to the creditors, places in the hands of the court authority to act where necessary, not only for the benefit of the creditors, but also in the interests of the public, who may be considered to be more or less wronged by every insolvency.

Prior to the year 1853 persons who had claims against the colonial Government had no remedy open to them by which those claims could be brought before the courts, except that of a petition of right. That

procedure was of limited operation and insufficient to meet all such cases. It could only be obtained in England, and was attended with great expense, inconvenience, and delay. In the year above named a short Act was passed (the Claimants Relief Act, No. 6 of 1853) to terminate this unsatisfactory state of things. It provides that persons having pecuniary claims against the Government of the province may petition the Governor to have those claims inquired into by the law courts. The petition must set forth the particulars of the claims, and contain a certificate from a practising barrister of the Supreme Court of the province that the petitioner has a proper case for redress. Within fourteen days of its presentation the Governor is required to refer the petition to the Supreme Court for trial by jury or otherwise as the court shall direct. In case the Governor, with the advice of his Executive Council, should certify that the petition affects the Royal prerogative the petition is transmitted to the Secretary of State for signification of Her Majesty's approval or disapproval. If it be returned with the Royal approval, the case proceeds in the ordinary way; but if returned without approval, the petition, with the indorsement thereon, and the reasons for withholding such approval, must be forthwith published in the *Government Gazette*, in which case the remedy provided by the Act cannot be had. At the time the reference is made to the Supreme Court, the Governor is directed to name some person to appear as nominal defendant. That person, however, is not subject to any individual responsibility, in either person or property, by reason of his being the nominal defendant. The Supreme Court is empowered to make rules and orders for regulating the proceedings under any petition, and the parties to such proceedings have the same rights, by way of appeal, rehearing motion for the reversal of verdicts, or otherwise, as in private suits at law or in equity. Costs follow on either side as in ordinary cases between suitors, and judgments recovered by any petitioners may be paid by the Governor out of the ordinary revenue of the colony.

The Supreme Court exercises jurisdiction in all matrimonial causes. No special judge is appointed to deal with such cases exclusively. They are heard and decided by arrangement amongst the judges themselves, and their decisions are reported to the Full Court, which issues its decrees in accordance therewith, unless cause to the contrary be shown, or some circumstances should transpire to justify suspension or variation of the customary orders. The private business of the court is carried on, under the judges, by a Master of the Supreme Court (who is also the Public Trustee), a registrar of probates and chief clerk, and three judges' associates. The processes of the court are enforced by the sheriff and his assistants. The judges of the Supreme Court have the

power to sentence criminals to death in cases where the law prescribes that penalty, and there is no appeal against any such sentence except upon questions reserved at the time of trial by the judge who tries the case. No sentence of death, however, is carried out until after the case has been brought before the Governor in Executive Council, when the judge before whom the trial took place is in attendance with his notes to afford such information relating to the circumstances as may be required to assist the Council in deciding whether or not the sentence shall be carried into effect. The Executive Council, which is composed of the Ministers in office for the time being, decide the question as to whether the capital sentence shall be carried out or not, and the Governor acts on their advice, as he does on other occasions where such advice is officially tendered to him. The judge who has tried the case signs the warrant for execution. All executions take place within the walls of a gaol. The sheriff is responsible for the due carrying out of the warrant. At the time of execution no one is admitted into the gaol except the coroner and the jurors who hold an inquest on the body of the criminal, and some members of the press. Capital punishment is a rare occurrence in South Australia. Only two executions have taken place in the province since 1881: the last was in 1883.

The business in the Courts of Justice is carried on by practitioners of the Supreme Court of South Australia. The profession of the law is not divided into two branches of barristers and solicitors, as it is in England and in many of the English colonies, but consists of one body, the members of which are called practitioners of the Supreme Court. These practitioners are entitled to practice as barristers, solicitors, attorneys, and proctors in all courts of the colony. Any practitioner may become a notary public, but a separate licence to act as a notary must be obtained from the Supreme Court on payment of a special fee.

To entitle a person to be admitted as a practitioner he must have served as a clerk under articles to a practitioner of the Supreme Court, or as a Judge's Associate, for at least three years, or part of the time as one and part as the other. He must also have taken the degree of LL.B. in the University of Adelaide, or have served under articles to a practitioner for at least five years, or have served as Judge's Associate for that term, or part of the time as a clerk under articles and part as a Judges' Associate, and also have passed, in addition, examinations at the University in the Law of Property, Constitutional Law, the Law of Obligations, the Law of Wrongs (Civil and Criminal), and the Law of Procedure.

A person who has been admitted to the bar, or as an advocate, solicitor, attorney, proctor, or writer to the signet in Great Britain, or

has served for a full term of five years under articles to any of the above-mentioned persons, or part of the time under articles to any such persons and the remainder to any practitioner in South Australia, and has passed the necessary examinations, is entitled to be admitted as a practitioner of the Supreme Court of the colony.

Any person who has actually been admitted as a barrister, solicitor, attorney, or proctor in Australasia, New Zealand, British North America, or in South Africa, and has satisfied the Supreme Court that the standard of qualification for admission to the bar of or as a solicitor, &c., in the colony from which he came is not inferior to that of South Australia, is entitled to be admitted as a practitioner of the Supreme Court of South Australia.

No person is entitled to be admitted as a practitioner unless he is a natural born or a naturalised subject of the Queen, and until he has attained the full age of twenty-one years. The fees payable on admission are: On taking the oath of allegiance, £1 1s.; admission fee, £10 10s.

Before a person is entitled to enter into articles of clerkship he must have passed the matriculation examination in the University of Adelaide, or in some University recognised by the Adelaide University, or the preliminary or intermediate examination which clerks articled in England, Ireland, and Scotland are required to pass.

Practitioners of the Supreme Court are eligible for appointment as Judges of the Supreme Court, or to any of the judicial offices which exist in the colony, although the Executive is not necessarily restricted to the bar of the Supreme Court of South Australia in any judicial appointments the Government may deem it desirable to make. All of the Judges of the Supreme Court, as well as the Commissioner of Insolvency, were practitioners of the Supreme Court of the province, and gained their professional experience in South Australia.

The records of the courts of justice form in most communities somewhat accurate indices to the general character and morals of the people with whose crimes, excesses, and personal disputes they are concerned. Happily for South Australia she has no distinct criminal class in her midst. There is a certain amount of vagabondage and rascality floating about Adelaide, as there is about all cities, but the people who fall within this category are not persons who commit serious offences, but who pass their lives in idleness when out of gaol, and when committed to gaol are sent there as drunkards, petty thieves, or as rogues and vagabonds. A large proportion of the criminals who are sent to the stockade, or otherwise the Yatala Labor Prison, which is the principal place where serious offences are expiated, are habitual criminals, as may

be seen from the following table, which gives the state of the prison for a period of ten years:—

Statement of the Number of Prisoners in the Yatala Labor Prison for Ten Years ending in 1892.

Year.	Prisoners Confined on Dec. 31st.	Previously Convicted.			Total of Previous Convictions.	Per cent. of Prisoners.
		Once.	Twice.	Three or More Times.		
1883	277	67	12	21	100	36·10
1884	234	47	13	18	78	33·33
1885	222	56	17	23	96	43·24
1886	195	51	15	39	105	53·84
1887	164	41	11	24	76	46·34
1888	144	31	10	27	68	47·22
1889	114	20	12	24	56	49·12
1890	101	13	15	21	49	48·51
1891	98	13	10	25	48	48·97
1892	121	19	16	29	64	52·89
Totals	1,670	358	131	251	740	44·31

From this it appears that above 44 per cent. of the inmates of the Yatala Labor Prison, during the last ten years, have been old and frequent offenders. Of these a considerable number have been convicted in other colonies. The table establishes the fact that serious crime has considerably decreased during the ten years ending on December 31st, 1892. In 1883 there were 135 new admissions into the prison; in 1884, 97, including two returned from the Lunatic Asylum; in 1885, 109, including one escaped and recaptured; in 1886, 86; in 1887, 81, including one sent back from the Lunatic Asylum; in 1885, 65, including one returned from the Lunatic Asylum; in 1889, 55, including one from the Lunatic Asylum; in 1890, 60, including five from the Lunatic Asylum and one escaped prisoner recaptured; in 1891, 69, including eight sent back from the Lunatic Asylum; in 1892, 85, including one returned from the Lunatic Asylum. This gives a total of 842 new admissions into the prison, but as it comprises nineteen remanded back from the Lunatic Asylum, and two escaped prisoners recaptured, the number is reduced to 821. The decrease between 1883 and 1892 is 56·31 per cent.

The continuous decline in the number of grave offences against the law is more strongly exemplified by the figures which follow. They comprise the decennial record of the number of offenders convicted in

the Supreme Court and the Circuit Courts between the end of 1882 and that of 1892.

Offences.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.	1892.
Offences against the person (felonies)..	16	15	5	5	4	6	8	4	5	4
Offences against property (felonies) ..	94	86	89	92	72	59	48	51	58	60
Misdemeanors	55	26	39	24	26	26	22	27	27	26
Totals	165	127	133	121	102	91	78	82	90	90

The decrease amounts to 45·45 per cent.

The subjoined table, which shows the number of cases heard and determined in the magistrates' courts of summary jurisdiction during the ten years, 1883 to 1892, inclusive, indicates the fact that minor offences — not necessarily criminal — have decreased nearly one-half, namely, 40·48 per cent., during the period.

Number of Cases Determined in the Magistrates' Courts, Summary Jurisdiction, for Ten Years ending in 1892.

Year.	Informations under Acts of Council, &c.		Drunkenness.		Number of Cases Heard and Determined.	Informations Laid and not Proceeded with.
	Dismissals.	Convictions.	Dismissals.	Convictions.		
1883........	1,047	6,553	55	4,478	12,133	1,110
1884........	982	6,182	54	3,884	11,102	1,019
1885........	852	5,322	88	3,273	9,535	983
1886........	714	4,017	95	2,471	7,297	830
1887........	613	3,743	64	2,026	6,443	772
1888........	559	3,656	38	2,350	6,603	735
1889........	581	3,450	32	1,971	6,034	591
1890........	631	3,449	114	2,268	6,462	692
1891........	660	3,770	141	2,846	7,417	779
1892........	696	3,828	127	2,571	7,222	826

In the year 1883 4,478 persons were convicted of drunkenness. Many of those persons were, as they are in all years, habituals who are continually before the magistrates. The extent to which their frequent appearances swell the total of the number of cases has not been ascertained. The South Australian colonists are not intemperate as a whole, and whatever amount of intemperance may have prevailed or does

prevail amongst them is steadily decreasing. In the year 1892 2,571 convictions for drunkenness were recorded. The difference between the number of convictions in the two years cited was 1,907 cases. In 1883 the estimated population was 300,100 persons; the convictions for drunkenness in that year amounted to 1·49 per cent. In 1892 the estimated population was 331,721 souls, and the convictions for the above offence had fallen to 2,571, or 0·77 per cent. The decrease in drunkenness is clearly shown by the following table:—

Table showing the ratio of Convictions for Drunkenness to the Total Population for Ten Years ending in 1892.

Year.	Population.	Convictions for Drunkenness.	Ratio per cent. to Population.
1883	300,100	4,478	1·49
1884	307,433	3,884	1·26
1885	306,212	3,273	1·07
1886	304,336	2,471	0·81
1887	308,215	2,026	0·65
1888	306,641	2,350	0·76
1889	311,112	1,971	0·63
1890	314,195	2,268	0·72
1891	320,723	2,846	0·88
1892	331,721	2,571	0·77

The mean annual population of the colony for the ten years included above was 311,069 persons. The mean annual number of convictions for drunkenness was 2,814, which gives a mean percentage of 0·90. These figures do not establish any great laxity of morals in the direction of intemperance in South Australia.

From the following extracts from the "Statistical Register," published officially, it appears that the committals to the Adelaide Gaol, which is the receptacle for all prisoners within a radius of nearly 100 miles from the metropolis, have fallen from 2,207 in 1883 to 1,139, in 1892, or 48·39 per cent. in the decade. Similarly the number of persons who had been previously committed declined from 977 in 1883 to 519 in 1892, or 46·87 per cent. in the ten years. The greatest number in the Adelaide Gaol at one time decreased from 231 in 1883 to 159 in 1892, or 31·16 per cent. in the period. The number of males dropped from 1,662 in

1883 to 868 in 1892, or 47·77 per cent., and the females from 545 in 1883 to 271 in 1892, or 50·27 per cent:—

Statement of the Number of Prisoners in the Adelaide Gaol for Ten Years ending in 1892.

Year.	Total Number Committed during the Year.		Number who had been Previously Committed.		Greatest Number in Gaol at One Time.		Number in Gaol on 31st December in each Year.	
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
1883....	1,662	545	587	390	167	64	74	34
1884 ...	1,489	467	448	348	151	55	100	31
1885....	1,130	430	356	311	125	57	60	25
1886....	1,074	430	378	320	99	50	74	23
1887..	941	357	240	312	104	43	63	35
1888....	912	295	375	215	91	34	70	33
1889....	957	321	350	226	102	38	56	38
1890....	887	257	320	196	94	36	94	29
1891....	956	260	357	204	127	38	103	28
1892....	868	271	327	192	137	22	87	7

There are seven gaols in South Australia:—The Yatala Labor Prison (for male convicts only, whose sentences are for eight months or more), the Adelaide Gaol, and smaller gaols at Redruth, Mount Gambier, Wallaroo, Port Lincoln, and Gladstone, to the last of which women who have long sentences to serve are sent to relieve the Adelaide Gaol. These prisons can accommodate 741 prisoners if confined in separate cells, and 1,129 if more prisoners than one occupy a cell. The number of prisoners received into all the gaols in the colony in the course of 1892 was 1,290 males and 289 females, in all 1,579, which gives a ratio of 0·48 per cent. of the population. Of these persons 1,159 males could read and write, and 222 females, 18 males, and 21 females could read only, and 114 males and 46 females could not read. The discipline in the different prisons is remarkably well maintained. The total number of punishments inflicted in the gaols for misconduct were only 32 in 1892, being only 2·03 per cent. of the number of prisoners incarcerated —1,579.

It has not been the purpose of this work to institute comparisons between this province and the other colonies which form the Australian group. It has been considered sufficient to treat of the colony as it is and has been, without reference to the sister provinces, whose internal affairs and whose condition do not directly concern the South Australian people. Statements, however, have appeared in an official work published in Victoria, which, if reliable, would lead to the inference that the

South Australian colonists are by far the most immoral people on the great Southern Continent. In the "Victorian Year Book, 1889-90," pp. 52 and 53, it is stated "that the Commissioner of Police in Victoria, by means of the force at his disposal and by correspondence with the police authorities in the neighboring colonies, a few years since obtained some figures relating to the prostitution existing in Melbourne, Sydney, Brisbane, and Adelaide, which will be found in the following table:—

Capital Cities.	Population, Census, 1881.	Estimated Number of Prostitutes, 1883.	Prostitutes per 10,000 of the Population.
Melbourne	282,947	597	21·10
Sydney	224,211	613	27·34
Brisbane	31,109	99	31·82
Adelaide	67,954	500	73·58

The "Year Book" says:—"According to the figures in the last column, Melbourne was much freer from prostitution than any one of the other metropolitan cities named. It will be observed that even in actual numbers the prostitutes in Melbourne were fewer than in Sydney, although the latter had the smaller population. An enormous amount of prostitution appears to exist in Adelaide; but the figures, being given in round numbers, must be regarded with suspicion." As regards the first part of the paragraph, which intimates that Melbourne was much freer from prostitution than any one of the other cities named, it is sufficient to say that any unprejudiced person who walked through the principal thoroughfares in the cities indicated after nightfall, and noted what he saw, would come to a different conclusion. As far as outward appearances can prove anything, the social evil prevails in Melbourne to an extent much in excess of that of any other Australian city. In the "Year Book" it is intimated that the figures relating to South Australia, being given in round numbers, must be regarded with suspicion. So, indeed, they should; but not because they are given in round numbers. According to other figures given in the "Year Book," it is proved that there is less crime and less drunkenness in South Australia than in any of the Australian colonies. Besides this, as a matter of fact there is less destitution and there are less illegitimate births in South Australia, in proportion to the population, than in any of the Australian colonies. Since it is a fact that the principal causes which lead women to resort to prostitution exist in a far less degree in South Australia than they do in other Australian colonies, it is reasonable to infer that the fact of prostitution itself must also be less.

Moreover, no figures such as those given above can be regarded as absolutely correct, because it is difficult to obtain an accurate census of the women who gain their subsistence in this miserable way. Even in countries where brothels are licensed and prostitutes registered such returns cannot be implicity relied on, on account of the number of female who follow their occupation in secret and unknown to the authorities. How the number of 500 prostitutes in Adelaide and its suburbs was arrived at it is impossible now to ascertain. It seems likely, however, from recent inquiries, that it was merely a general estimate, not resting on ascertained numbers. The reports from the Commissioner of Police show that in the year 1890 37 women were arrested by the police for loitering for or soliciting prostitution. In the following year (1891) the number was 14, and in 1892, 21. The number of persons arrested for indecent assaults in 1890 and 1891 amounted to 14 in each year, and 11 in 1892. The number arrested for rape in 1890 was 9, 6 in 1891, and 8 in 1892. The number arrested for lewdness in 1890 was 6, and in 1891 8, and 10 in 1892. In 1890 there were no arrests for keeping disorderly houses, 2 in 1891, and none in 1892. These figures and facts do not indicate the existence of such widespread immorality in South Australia as might be inferred from the figures given in the "Year Book."

Early in 1892 the subject of the amount of prostitution existing in the city of Adelaide and its suburbs engaged the special attention of the police. The outcome of a careful investigation into the matter was that within the area indicated, which contained a population of 132,252 souls, the number of women of the unfortunate class who were known to the police was 204; this would give a proportion of 15·31 per ten thousand. If, however, the population is estimated according to the number of females only within the city and suburbs, 69,375, the result is that there are 29·41 per ten thousand females.

The relative morality of the colonies in another aspect is shown by the following extract from the report of the Registrar-General of Births, Deaths, and Marriages in South Australia for the year 1892:—

"*Illegitimate Births.*—The births entered in 1892 as illegitimate numbered 309 (159 males and 150 females), against 315 in the previous year, the percentage of illegitimate to all births being the same for each of the two years, viz., 2·93. The latest returns received give the following percentages for all the Australian colonies and for England:—

Western Australia	1892	5·89	Tasmania	1892	4·75
New South Wales	1892	5·62	New Zealand	1892	3·32
Victoria	1892	5·59	South Australia	1892	2·93
Queensland	1892	5·05	England	1891	4·20

"For the convenience of reference and of comparison the South Australian rates of illegitimacy are here appended, for twelve years:—

1881	2·25	1887	2·49
1882	2·25	1888	2·57
1883	1·75	1889	2·47
1884	2·10	1890	2·50
1885	2·42	1891	2·93
1886	2·38	1892	2·93

"For these twelve years the mean percentage of illegitimate to the total births was 2·43, while, according to the 'Victorian Year Book' for 1892, the mean percentages in the other Australasian colonies and the United Kingdom (calculated in each instance on the returns of many years) were as follows:—

New South Wales	4·44	New Zealand	2·57
Victoria	4·30	England and Wales	4·70
Tasmania	4·06	Scotland	8·20
Queensland	3·87	Ireland	2·70

Divorce cases and matrimonial suits are factors in the morality of a people. These factors in South Australia are recorded as under:—1883, 38; 1884, 36; 1885, 31; 1886, 18; 1887, 14; 1888, 16; 1889, 12; 1890, 8; 1891, 14; 1892, 8.

These records effectually dispose of the suggestion that South Australia is the most immoral colony in the Australian family. They go, further, to prove that, taken altogether, the standard of morality in South Australia is as satisfactory as her position is with regard to crime when compared with that of any of the other colonies in the Australian continent.*

With regard to proceedings in the civil courts, the extension of the jurisdiction of the local court to suits involving sums up to £490 it is certain has greatly reduced the amount of litigation in the Supreme Court of the province; and the decisions of the inferior courts (some of which are presided over by gentlemen who have not had a legal training) have generally given satisfaction. The determination of the cases which come into court is much more speedy than it would be if brought before the higher tribunal, and the costs are less. The reduction in the number of writs issued out of the Supreme Court has fallen off from 1,104 in 1883 to 169 in 1892, and the number of records entered for trial has declined from 58 in 1883 to 18 in 1892. In equity in the Supreme Court the originating summonses have fluctuated considerably, ranging in the ten years from 1883 to 1892 from 3 to 10. There were 27 in 1888. The number of

* The figures given in the "Victorian Year Book" have been altered since the above was in type. As the incorrect statements have been widely circulated in that publication it has not been considered advisable to alter the text. The refutation should appear on record as well as the statements themselves.

petitions filed have increased from 40 in 1883 to 154 in 1892. Here again there have been remarkable fluctuations, so sudden and spasmodic (if they may be so designated) as to be referable to no ascertainable principle. The number of probates of wills grew from 371 in 1883 to 536 in 1892, and the number of letters of administration ranged from 182 to 206 in the decade. These must be regarded as formal proceedings only, which do not properly fall under the head of litigation. The effect of the Local Courts Act may best be indicated by the diminution in the number of writs which passed through the Sheriff's Office. In 1883 there were 169; in 1884, 182; in 1885, 138; in 1886, 111; in 1887, 35; in 1888, 23; in 1889, 18; in 1890, 16; in 1891, 16; in 1892, 19. A great deal of this is due to the abolition of imprisonment for debt. It should be mentioned here that persons who attempt to abscond from their creditors may be arrested and punished, and persons who have fraudulently absconded from the colony for the purpose of avoiding the payment of their just debts may be brought back to the colony and proceeded against criminally.

As regards insolvencies, the decrease in the number of cases in the ten years ending 1890 has been remarkable. The number of adjudications reached its highest point in 1883, when there were 355, and it gradually declined till it reached its lowest number, 67, in 1891; in 1892 there were 80. The cases brought into the Local Courts in actions of debt have not varied in number to any great extent during the last few years, but out of 11,793 cases only 13 were tried by juries in 1892. The most singular feature in connection with Local Court suits is the difference between the amounts sued for and those for which verdicts were returned. The aggregate of the claims amounted in 1892 to £150,700. The defendants allowed judgment to go by default to the extent of £42,256, leaving claims to the amount of £108,444 to be determined on the hearing of the causes. The actual amount of the verdicts recovered was £10,767, or rather less than 10 per cent. Similar differences, though varying only in degree, are observable in previous years. In 1883 the number of private arrangements under the Insolvency Act was 135; in 1892, 226.

With regard to prisons, the immediate charge of the stockade (which is situated about eight miles north of Adelaide) is under a superintendent (who resides at the prison), with a staff of guards; but the general control of this penal establishment, as well as of all other gaols except the reformatory school for juvenile offenders, rests with the Comptroller of Labor Prisons, who is also Sheriff of the province. The discipline is punitive only. The prisoners in the stockade are mostly employed in quarrying stone and breaking it for road metal; but only able-bodied

prisoners can be set to work like this. The rest, as far as possible, are required to labor at their trades and in various other ways, as far as circumstances may allow. The small number of prisoners, their unequal sentences, their personal conditions and capacities, and their state of health do not favor their organisation so as to follow out any distinct kind of labor, except in a desultory way. Each able-bodied prisoner, however, is required to perform a certain daily task, and by that means obtain a remission of sentence, equivalent to one-third of his term, for continuous good conduct. From this it may be inferred that the Yatala Labor Prison is not self-supporting. The work performed by the prisoners, gauged by the direct revenue received as the result of their labor, cannot be taken as an index to their actual earning. The general work about the prison, the cultivation of certain plots of ground in rearing vegetables for the use of the prisoners, and other employments which would have a distinct money value if done by free men out of doors, can scarcely be reduced to a standard with a constantly varying number of workers, whose capacity and experience in different kinds of labor is always uncertain and whose period of detention is uncertain also. A few years ago a new prison was built within the walls of the stockade, and almost the whole of the structure was erected by convict labor. The actual trade value of the work performed has not been credited to the general revenue of the prison, apparently because no money was received; but the worth of the buildings and of the work done by the convicts in erecting it amounts to several thousands of pounds.

The Adelaide Gaol is the common receptacle of all persons who may be committed to prison within a distance of about 100 miles from Adelaide. They include offenders whose sentences range from seven days up to eight months—insolvents detained by order of the court, debtors committed from local court, and prisoners awaiting trial. A large amount of work cannot be expected from so mixed collection of persons. Many of them are physically incapable, and are scarcely able to support themselves when at large. What little they are able to do has scarcely an appreciable value, though the cost of their maintenance whilst under detention is the same as that of persons who are able to perform hard work. There is an olive plantation close to the gaol, the cultivation of which and the making of olive oil employs a large number of prisoners at the proper season of the year. Others are engaged, under the charge of guards, in cleaning up the cattle market, which is near the prison, after market days. Others again work at stonebreaking, oakum picking, &c., and in various ways about the prison as they may be directed. Prisoners awaiting trial and insolvency or local

court prisoners are not required to perform any labor except that of keeping those portions of the gaol in which they are incarcerated clean and in good order. The other prisons are the receptacles of local offenders, and some of them of criminals convicted at the circuit courts which are held in their vicinity. The daily dietary allowance for the several classes of prisoners is as follows:—No. 1. *Hard labor*—Bread, 1½lbs.; meat, 1lb.; potatoes, 1lb.; tea, ½oz.; sugar, 2ozs.; rice, 2ozs.; salt, ½oz.; soap, 1oz.; tobacco, ¼oz. No. 2. *Light labor*—Bread, 1lb.; meat, ½lb; potatoes, 1lb.; tea, ½oz.; sugar, 2ozs; rice, 2ozs.; salt, ½oz.; soap, ½oz.; tobacco, ¼oz. No. 3. *Solitary and late*—Bread, 1½lb.; water, *ad lib* Prisoners (male) are only allowed tobacco as a reward for good conduct and industry—that is to those only who are earning credit time, or for special good behaviour in those to whom credit may not apply. Ration No. 1 is only allowed to such prisoners as perform the required amount of labor, unless ordered by the medical officer. The medical officers of the different prisons are empowered to vary the dietary scale for any prisoners according as circumstances may require. The average annual cost to the public of all the prisons in the province for the five years ending in 1890 was £13,751 17s. 8d.

The peace and good order of the colony is preserved by the South Australian police force, which was established in 1839. Various Acts have been passed since that date to amend the Police Act, but in 1869-70 a consolidating Act became law, under which the police have since carried out their duties. The police force is divided into three branches—mounted, foot, and detective. The force consists of 5 inspectors, 2 sub-inspectors, 15 sergeants, 15 corporals, 1 saddler, 152 mounted constables, 191 foot constables, 2 female searchers, 14 native police, 24 camels, and 313 horses. The detective police has 9 members, who are included in the general strength. The whole of the police are under the command of a Commissioner, who is directly responsible to the Chief Secretary. For police purposes the province is divided into six divisions, over which the police are distributed as under:—*Metropolitan and Suburban*—About 200 square miles in area, within a radius of eight miles from Adelaide, 2 inspectors, 2 sub-inspectors, 9 sergeants, 6 corporals, 1 saddler, 24 mounted constables, 170 foot constables, 2 female searchers, 1 native police, 52 horses. *Central Division*—18,940 square miles, 2 sergeants, 2 corporals, 38 mounted constables, and 46 horses. *South-Eastern Division*—9,430 square miles, 1 inspector, 2 corporals, 14 mounted and 3 foot constables, and 27 horses. *Northern Division*—13,270 square miles, 1 inspector, 2 sergeants, 3 corporals, 27 mounted and 12 foot constables, 1 native police, and 44 horses. *Far Northern Division*—About 20,000 square miles, 1 inspector, 2 sergeants, 2 cor-

porals, 49 mounted and 3 foot constables, and 114 horses. *Northern Territory*—318,230 square miles, 1 inspector, 1 sergeant, 18 mounted police, 10 native police, 24 camels, and 57 horses. The Northern Territory police are not reckoned in the strength of the force belonging to South Australia proper. The area of South Australia (exclusive of the Northern Territory) is about 380,000 square miles, so that there is one police officer to every 1,107 square miles. The population according to the census of 1891 was 315,210, so that there was one constable to every 919 inhabitants. The foot police do the duty of preserving the peace in the public streets, and, as far as they are able, to prevent crime; they are on duty for eight hours at a time. The duties of the mounted troopers are multifarious. Circumstances require them, in many cases, to act as Crown lands rangers, to collect the census papers in outlying districts, to collect jury lists and agricultural statistics, to watch cases of destitution and communicate with the destitute board thereon, occasionally to act as public vaccinators and Customs officers near the borders; all these functions being superadded to the ordinary duties of constables. After five years' continuous service non-commissioned officers and constables who may be compelled to resign their positions from ill-health or abolition of office are entitled to one month's pay for every year of continuous service, and the same rate of allowance on voluntary retirement after twenty years' service. This is paid from a fund called the police fund, which is maintained from a proportion of all fines, fees, forfeitures, &c., obtained by the police. Officers on retirement are paid from the general revenue in a similar proportion. All the police are drilled to the use of arms. The metropolitan police are supplied with Martini-Henry rifles and batons, and are drilled so as to be capable of acting with local military forces should an emergency arise. They have some of the best marksmen in the colony in their ranks, and compete annually for prizes given by the Government. The mounted police are armed with swords and Smith & Weeson's revolving carbines, which can be used as revolvers or carbines as occasion may demand. These are very effective and light to carry. The men are drilled in the simplest cavalry movements to enable them to act together in emergencies, and on such occasions they discard their swords and carry batons and revolvers. The daily pay of all constables, as voted by Parliament, is 7s. 6d., but for the sake of departmental convenience the men are divided into three classes—1st class, 8s. per day; 2nd class, 7s. 6d.; 3rd class, 7s. Promotion from class to class goes by seniority. For the grade of non-commissioned officer an examination as to fitness and ability must be passed. In addition to the above rates, constables of more than four years' standing are entitled to 1d. per diem for every year's service in excess

of four years. The mounted police receive £12 per annum each as uniform allowance and the foot police £9. Until two years' service is completed the daily pay for both branches of the force is 6s., and only half uniform allowance is given. Leave of absence for recreation on full pay, not exceeding fourteen days in the year, is allowed to every constable, which he can take at one time, or as it suits him. A band is attached to the foot police at head quarters, supported entirely by voluntary contributions. The ranks are, to a large extent, recruited from colonial youths. The force is an admirable one. They have a splendid physique, and compare favorably in all respects with any similar body of men in any part of the world. The force has been organised on its present basis by Mr. W. J. Peterswald, the Commissioner.

CHAPTER XIV.

THE CROWN LANDS ACT 444 OF 1888—ITS DIVISIONS.—PART I. DEFINITION OF TERMS USED IN THE ACT—ALIENATION OF LANDS—EXCHANGE OF LANDS—DEDICATION OF LANDS—RESUMPTION—RESERVATION OF GOLD, SILVER, AND OTHER METALS, &C.—COMPENSATION TO OWNERS—PART II. LEASES—LAND DISTRICTS—LAND BOARDS—CLASSIFICATION OF LANDS—POWERS OF LAND BOARDS.—PART II. LEASES WITH RIGHT OF PURCHASE—RENTS, HOW TO BE PAID—COVENANTS—RESUMPTION OF LEASED LANDS—IMPROVEMENTS—SURRENDER OF LEASES—REMISSION OF RENTS.—PART III. SALES OF LAND FOR CASH—TERMS.—PART IV. PASTORAL LEASES—CLASSIFICATION THEREOF. CLASS I. LEASES TO BE OFFERED AT PUBLIC AUCTION IN SUITABLE BLOCKS—TERMS—IMPROVEMENTS TO BE PAID FOR ON TERMINATION OF LEASE, AND COMPENSATION FOR DEPRECIATION OF LEASE IN CASE OF RESUMPTION.—LEASES IN CLASS II. IMPROVEMENTS HOW TO BE PAID FOR—COMPENSATION FOR—DEPRECIATION IN VALUE OF RUN IN CONSEQUENCE OF RESUMPTION.—CLASS III. LEASES TO BE OFFERED AT PUBLIC AUCTION—CONDITIONS—PAYMENT FOR IMPROVEMENTS—LESSEE REQUIRED TO STOCK THE LAND WITHIN THREE YEARS—LESSEE RELEASED FROM THE COVENANT TO STOCK ON CERTAIN CONDITIONS—ENTRY ON LEASED LAND FOR SURVEY AND OTHER PURPOSES—LESSEES TO MAKE RETURNS OF STOCK—TRAVELLING STOCK TO PAY FEES—DEPASTURING STOCK WITHOUT AUTHORITY—PAYMENTS AND PENALTIES—PERSONS WHOSE LEASES HAVE BEEN FORFEITED NOT ALLOWED TO HOLD A LEASE OF THE LAND OR ANY INTEREST THEREIN.—PART V. LEASES AND LICENCES FOR MINING PURPOSES—TERMS OF LEASES—RENT—ROYALTY ON PROFITS—RETURNS TO BE FURNISHED—PENALTY FOR NON-COMPLIANCE—INSPECTION OF BOOKS AND PAPERS—LAND NOT TO BE USED FOR OTHER THAN MINING PURPOSES—EXPENDITURE ON LANDS LEASED FOR MINERAL PURPOSES—SURRENDER OF LEASES—MINERAL LICENCES—TERMS AND CONDITIONS—SURRENDER OF LEASES.—PART VI. MISCELLANEOUS LEASES—ABORIGINAL RESERVES—GOVERNMENT BUILDINGS—SITES FOR VARIOUS PURPOSES—TO BE OFFERED AT AUCTION—GRAZING LEASES—CULTIVATION OF SUCH LANDS—PRESERVATION OF GROWING TIMBER—LICENSES TO ENTER UPON RESERVED OR DEDICATED LANDS—TERM OF LICENCE—CANCELLATION OF LICENCES.—PART VII. WORKING MEN'S BLOCKS—AREA—TERMS OF LEASE—TERMS OF PURCHASE—CONDITIONS OF RESIDENCE.—PART VIII. FRAUDS AT AUCTIONS—ILLEGAL AGREEMENTS.—PART IX. MISCELLANEOUS PROVISIONS.—PART X. LEGAL PROCEDURE—APPOINTMENT OF CROWN LANDS RANGERS—TRAVELLING STOCK—POWERS OF RANGER—OFFENCES AND PENALTIES - AMENDING ACT 472 OF 1879.—PART I. INTERPRETATION OF TERMS—REPEAL OF CLAUSE 41 OF ACT 444 OF 1888—HOW RENT TO BE CHARGED - EXCHANGE OF LEASE FOR A PERPETUAL LEASE OR LEASE WITH RIGHT OF PURCHASE—CONDITIONS AND PROVISIONS AS TO PAYMENTS.—PART III. PROVISIONS AS TO RABBIT-PROOF FENCES.—PART IV. MISCELLANEOUS CONDITIONS—METHOD OF APPLYING FOR LAND UNDER ACTS 444 OF 1888, AND 472 OF 1889—GENERAL INSTRUCTIONS—LEASES FOR WORKING MEN—GENERAL REMARKS.

IN earlier portions of this work reference has been made to the method of disposing of the waste lands of the colony at the time of its foundation, and to some of the modifications which it became necessary to make

in order to check abuses which had grown up within the systems which were in force. These were specially apparent in the auction system. From time to time alterations in the law were made, but none of them proved to be of a permanent character. They were found either to be faulty in construction, or, at any rate, unsatisfactory to the public. It is not necessary to trace out all the changes in the land laws which were effected. It will be sufficient for the purposes of the present book to show *in extenso* what the laws now are. These will become thoroughly understood from the subjoined extracts from a report on the disposal of the Crown lands of South Australia made by G. W. Goyder, Esq., C.M.G., Surveyor-General, to the Hon. Commissioner of Crown Lands in 1890. This report*, which is exhaustive, traces the history of the treatment of the waste lands of the Crown from the time of its first settlement down to June, 1890, the date at which it was made.

"The present Crown Lands Act, 444 of 1888, which repeals previous Acts, is divided into ten parts, as follows, viz.:—Parts I. Introductory and general, with definitions and powers of Governor; II. Leases with right of purchase and perpetual leases; III. Sales of land for cash; IV. Pastoral leases; V. Leases and licences for mining purposes; VI. Leases and licences for miscellaneous purposes; VII. Leases of small blocks for working men; VIII. Frauds at auctions; IX. Miscellaneous provisions: X. Legal procedure, trespasses, and penalties.

"Part I. defines the terms used in the Act; provides for the alienation of lands by the Governor; for the exchange of Crown lands for other lands; leasing or devising lands to aboriginals; dedication of lands for public purposes, such as water supply; roads—dedication by delineation on maps of public roads; quays, wharves, or landing places; public reservoirs, aqueducts, or watercourses; hospitals, asylums, or cemeteries; market-places or abattoirs; institutions for public amusement or instruction; public buildings and schools, not being for ecclesiastical or denominational purposes; park lands or places for the recreation and amusement of the inhabitants of any place, town, or city; places for public safety, convenience, health, or enjoyment, and for any other public purpose the Governor may think fit. The Governor, by proclamation, may resume dedicated lands, a statement of reasons being laid before Parliament; constitute counties and hundreds and towns, or declare county, hundred, or town shall cease to exist; extend or diminish the area of any county, hundred, or town, or alter or divide the boundaries of the same; may set apart Crown lands as town or suburban lands; or proclaim mineral lands, and decide the form in which grants, alienations, reservations, and dedications shall be made; and may cancel by proclamation the grant of

* Parliamentary Paper No. 60 of 1890.

and resume any dedicated land which shall not be used or required for the dedicated purpose. Dedicated lands may be exchanged, and reserving from lands to be granted under the Act all gold, silver, and other metals, gems or precious stones, coal, and mineral oil, with right to enter upon such lands and mine for the ores, metals, gold, gems, coal, oil, &c., by paying fair and reasonable compensation to the owner of the land.

"Part II. refers to leases with right of purchase and perpetual leases. It provides that lands shall be surveyed and delineated on public maps prior to sale of leases; that all Crown lands (except town lands) in hundreds and schedule D may be taken up on lease with right of purchase or perpetual lease; that the Governor may, by proclamation, divide the province into land districts with distinguishing names, and to appoint land boards for each district, each board to consist of five members, of whom three shall be residents of district for which they are appointed, but shall not be civil servants. The boards to hold office for twelve months from date of appointment, but retiring members to be eligible for re-appointment; three members to form a quorum. Each land board from time to time, subject to the approval of the Commissioner, to classify the Crown lands (except town lands) within hundreds in the several districts, and decide upon the area to be included in each separate block and the area that may be held by any one lessee according to the class of land, and fix the price and annual rent at which each block may be taken up on lease with right of purchase and the annual rent at which each block shall be taken up on perpetual lease. Due notice to be given in the *Government Gazette* of the date up to which application shall be made to the Commissioner for such lands, the applicant to specify which kind of lease he applies for (with name, address, and occupation), and to enclose with such application 20 per cent. of the first year's rent, as notified in the *Government Gazette*, all applications up to date specified in notice to be considered as simultaneous, and to be referred by the Commissioner to the land board in whose district the land is situate, unless the land be previously withdrawn from sale by the Commissioner.

"The boards to meet when summoned by the Commissioner to consider the applications, and may require the attendance of and examine applicants and their witnesses, and all objectors and their witnesses, and determine to which applicant the land shall be allotted, or may reject any application, or may subdivide or alter the boundaries of any block in cases where there are more than one applicant for the same, and may apportion the price and annual rental, or the annual rent only, according to application for lease with right of purchase or perpetual lease, where subdivision of a block is resorted to with the consent of the applicants. Each person to whom a portion is allotted will be called upon to pay part

of cost of subdivision by survey on the ground, and the names of applicants to whom land has been allotted shall forthwith be published in the *Government Gazette.* Leases to the successful applicants to be prepared in triplicate, and to be left in land office, or sent to applicant's address, as desired, for signature, and returned signed within twenty-eight days to the land office for execution by the Governor. This time may be extended by the Commissioner; but without such extension the leases will be liable to cancellation if not signed and returned to land office within the specified time, and all moneys paid on account of lease forfeited.

"Every lease with right of purchase shall be for a term of twenty-one years, with a right of renewal for a further term of twenty-one years, and a right of purchase of the leased lands at any time after six years, at the price fixed by the board, such price not being less than 5s. an acre. The renewed lease shall contain a right of purchase at a price to be then fixed by the board, not being less than 5s. an acre. The rent reserved on perpetual leases for the first fourteen years shall be that notified in the *Government Gazette*, and for every subsequent fourteen years, shall be fixed by the board by re-valuation, not less than twelve months before the expiry of each period of fourteen years; the re-valuation in each case to be notified by the Commissioner to the lessee, who shall signify to the Commissioner, within six months, his acceptance or refusal of the same.

"All rents to be annually paid in advance; and gold, silver, and other metals and ores, gems, coal, mineral oil, &c., to be reserved from the grant, as well as growing timber; the lessee, however, to be at liberty to cut and remove any timber for cultivation or building purposes upon the leased land.

"Each lease to contain covenants to pay rent in advance, taxes, fence land within first five years of term with fence or wall capable of resisting trespass of cattle, and to keep such fence or wall in good repair; to destroy and keep the land free of vermin; to keep and maintain all improvements, the property of the Crown, in tenantable repair and condition; to insure to full insurable value all buildings upon the land, the property of the Crown; to permit, subject to the regulations, lessees or licencees holding leases or licences under Part V. of the Act to have free access to, and egress from, the land; and such other covenants, powers, and conditions as the Governor may deem proper to prescribe by regulations.

"The Governor may, at once, or from time to time, on giving three months' notice to the lessee, and payment of compensation for loss sustained thereby, resume the whole or part of the land leased for roads,

railways, tramways, towns, park lands, mining, or for any public purpose.

"The board, in fixing the annual rental and price for land in lease with right of purchase, or the annual rent for a perpetual lease, when there are any improvements on such lands, shall take such improvements into account. In fixing rent and purchase-money, or rent for renewed leases, the board shall fix the rent irrespective of improvements which the lessee shall have made.

"Should the holder of a perpetual lease fail to signify his acceptance to the Commissioner of the rent fixed by re-valuation for fourteen years within six months after notice of such re-valuation has been sent to him, he will forfeit his right to a renewal, and the lease will be offered at the rental fixed by the board, and the improvements made by former lessee be paid for by the incoming tenant to the Commissioner, and by the Commissioner to the outgoing lessee. But should the lease of the land not be sold, the Commissioner may reduce the price from time to time on recommendation of the board, and re-offer the land as before.'

"Any person holding a lease under any of the Crown Lands Acts, under agreement with right of purchase, under lease with right of purchase, or lease issued on the surrender of any agreement for purchase, may surrender his lease or agreement in exchange for a lease with right of purchase or for a perpetual lease; and any person holding a lease of lands reserved for leasing may in like manner surrender his lease for a lease with right of purchase or perpetual lease. Provided that not more than 1,000 acres of land reserved for leasing shall at the time of leasing be held with right of purchase by any one person. Persons so surrendering shall apply to the land board of the district to fix the price and annual rent with a right of purchase and the annual rent at which he may obtain a perpetual lease. On fixing such rental and price, or rental in case of perpetual lease, the board shall notify such to the Commissioner for his approval, and, after such has been obtained, to the applicant, who may decline such or accept a lease with right of purchase or perpetual lease at his option, and, in the event of his accepting such lease, shall be credited with all payments, except the first deposit of 10 per cent., made by him on account of rent or purchase-money of such surrendered lands.

"The Commissioner, on the recommendation of the land board for the district, may reduce or remit any arrears of rent in respect of any lands leased from the Crown within hundreds within such district, and within schedule D; a return of such reductions or remissions, with reasons therefor, being annually laid before Parliament within one month of the opening of Parliament for the dispatch of business. Power is given to land boards to enter upon leased lands to inspect the same, and to view

the buildings and other improvements thereon; and power is taken by the Commissioner to grant commonage on Crown lands within hundreds, and outside the limits of municipal corporations and district councils.

"Part III. relates to the sale of land for cash. It provides for the sale by auction for cash of special blocks which are surrounded by sold lands or lands contracted to be sold, and which shall have been withdrawn from sale or lease, and also blocks of land not exceeding 100 acres which may be required for the establishment of any industry, trade, or business, or for any other purpose approved by the Governor; for the sale by auction for cash of all Crown lands within hundreds offered for lease under Part II. of the Act and remained open for a period of two years; and for the sale of town lands by auction for cash—the Commissioner to fix the upset price in each of these cases, but no such upset price to be less than 5s. per acre.

"Twenty per cent. of the purchase-money of lands sold for cash to be paid at the time of sale, and the balance within one month from such date, or the sale shall be null and void, and the deposit forfeited, unless the Commissioner shall see fit to waive such forfeiture, as elsewhere provided.

"Lands that have been open for leasing for two years, and are about to be offered for cash, shall remain open to application for leasing until thirty days prior to the date of offer at auction, and shall again be open to leasing or to sale by private contract for cash should they not be sold when offered for sale by public auction. Purchase-money arising from the sale of lands shall form a fund primarily applicable to the payment of such portion of the public liabilities as shall hereafter be specially charged thereon. Any Crown lands may be sold for the purpose of forming a fund for payment of the deficit in the revenue of the province on the 30th day of June, 1887, or of the moneys secured by Treasury Bills issued in respect thereof, provided that plans showing lands proposed to be sold, with area and price, be laid before Parliament for a period of thirty days, and a resolution as to the expediency of such sale shall have been passed by both Houses of Parliament.

"Part IV. of the Act relates to pastoral leases, which are divided into three classes. Class I. includes lands held by pastoral lessees for any term of years granted by a new lease issued under preceding Crown Lands Act, and which leases, except in a few cases, expired in 1888 or on the 1st of January, 1889. Class II. includes pastoral lands held on the 14th day of November, 1884, and which are held, or shall hereafter be held, pursuant to the then-existing right to a renewal of such pastoral lease. Class III. includes all other pastoral lands not included in classes I. and II.

"The conditions relating to class I. provide that when a lease is about to expire or be determined, and the lands shall not be required for any other purpose, the Commissioner may cause the lands to be offered to lease by public auction in blocks most suitable for securing the stocking and development of the country and utilising the improvements, the lease to be for a term of twenty-one years, the rent to be fixed by valuation, and paid annually in advance, not being less than 5s. per square mile. The lessee to pay a deposit of 10 per cent. on the value of the improvements, which shall be held as security for their maintenance in a proper state of repair. The deposit to be paid on the lessee taking possession, and interest at the rate of 5 per cent. per annum to be credited to rent on account of such deposit. Should the lessee have complied with the conditions of lease, the deposit to be repaid to him on expiry of lease, or so soon as he shall have made improvements upon the land equal in value to the amount of deposit, unless the lessee shall have permitted any improvements upon the land to get into disrepair, in which case an amount equal to the depreciation in value shall be forfeited. New leases to be offered for sale by auction not earlier than two years before, nor later than the expiry of the lease then determining; and the lessee shall be allowed, notwithstanding the sale of a new lease, to continue in occupation of such lands for twelve months after the sale of the new lease, nothwithstanding the expiry of his existing lease, during which period he shall be a tenant on the terms of his expired lease, but shall pay the rent reserved by, and otherwise perform the terms of such new lease, and exonerate the purchaser from such payment and performance, subject to such terms and conditions as may be prescribed by the regulations.

"On expiry of lease by effluxion of time, and subject to the provisions of the Act, the lessee shall be entitled to be paid the value of all substantial water improvements made by him during the currency of the lease; and in case of resumption (except for leased lands in schedule B, situate on the west coast near Fowler's Bay, and on the River Murray) the lessee shall also be paid compensation, to be fixed by valuation, for the loss or depreciation in the value of the lease caused by such resumption, whether for the whole or only for a portion of the leased lands.

"Leases in class II. are similar to those in class I. as to term of years, rents fixed by valuation, date of offer, and occupation by existing lessee for twelve months after date of sale, and also as to compensation in payment of improvements on expiry of lease, and on resumption; with this difference, that the lessee in class II. is paid for all other improvements effected upon the run by the lessee during the currency of the lease in addition to substantial water improvements, due notice being given to the

Commissioner, as required by the Act, of the intention to make such improvements. He is also entitled to compensation for depreciation in value of run should any portion of the land be resumed.

"In class III. the Commissioner may cause leases to be offered for sale by public auction upon the following conditions:—Term, thirty-five years upset annual rental, to be paid in advance, 2s. 6d. per square mile for the first fourteen years of the term, the rent payable afterwards to be fixed by valuation every seven years. The Commissioner shall give notice of such valuation in the *Government Gazette* not less than sixty days preceding each successive term; and within the first thirty days of such notice appearing, the lessee may surrender his lease, in which case the land in the surrendered lease should be offered at auction under conditions of the surrendered leases, and for the remainder of the term, a premium of three-fourths the value of the improvements then on the land, to be paid by the purchaser to the Commissioner, and by the Commissioner to the surrendering lessee, after deducting any arrears of rent, and other moneys, if any, due by him to the Government. Should the lease be unsold when offered at auction, the Commissioner may reduce rent gradually to a minimum, and value of improvements in proportion, until the lease is disposed of, when the value put upon the improvements will be paid to the Commissioner, and by him to the surrendering lessee, as therein provided.

"On expiry of a lease in class III., the lessee is entitled to payment of the value of all improvements, fences, buildings, &c., as well as for substantial water improvements, and, in the case of resumption, he shall be entitled, in addition, to compensation for loss or depreciation in value of run in consequence of such resumption. The lessee must, however, give written notice of all improvements intended to be made by him, as provided by the Act. In resumptions, if the land is required for the purposes of railway, road, public work, site for a town, cemetery, or park lands but one month's written notice is required to be given. Three years' notice shall be given, except for certain lands on the Murray and near Fowler's Bay on the west coast, detailed in schedule B to the Act, in which cases but twelve months' notice of resumption is necessary.

"In class III., the leases sold at auction are offered at the upset price, and, where necessary, at the premium stated, and all payments made by a pastoral lessee, pursuant to section 60 of the Act (where the previous lessee is permitted to occupy the leased land for twelve months after date of sale of the lease), in exoneration of the purchaser of a new lease shall be credited against the rent falling due after the first year in such lease. Notice of sale of leases in *Government Gazette* shall appear for not less than four weeks prior to the sale, and passed lots may be again offered by

the Commissioner, at such rental as he may think fit, provided that no lease be offered at a less rental than 5s. per square mile. In fixing the rent by valuation, regard is had to the pastoral capacity of the land for stock; its proximity and facilities of approach to railway stations, ports, rivers, and towns, and other circumstances of situation affecting its value, and as to class I., only to improvements thereon. In no case shall the upset annual rent in class III. be fixed at less than 2s. 6d. per square mile. No lessee shall be entitled to payment for improvements made after the 14th day of November, 1884, unless he shall have given notice in terms of clause 75 in writing, to the Commissioner, stating nature, position, probable cost, and date of completion thereof, and no improvements shall be valued or considered under the Act unless the Commissioner shall be satisfied that they were made *bonâ fide* for increasing the carrying capacity of the run. No lessee shall be entitled to more than one payment in respect of the same improvements; payment for improvements shall be made within six months after the resumption of the land or expiration of the lease, and if the lessee shall continue in possession of the land after the expiration of the lease, then within six months after he has given up possession. In estimating or computing the compensation to be paid in loss or depreciation in value of any lease, no increased value is to be given on account of public works constructed after the date of the lease.

"In class III. the lessee is required to stock the land leased before the end of the third year of the term with not less than five head of sheep or one head of great cattle, and to keep the same so stocked; and before the end of the seventh year, to increase the stocking to at least twenty head of sheep or four head of great cattle per square mile; and, on being required to do so, to furnish the Commissioner with a true statement of the sheep or cattle with which the leased land is stocked. But the lessee may be discharged of this covenant for three years by effecting improvements before the end of the third year of the term to the value of 30s. per square mile; and improvements effected to the value of £3 per square mile before the end of the seventh year of the term shall totally discharge the lessee from the covenant of stocking.

"Power is also taken in the Act to enter on leased lands for the purpose of survey, inspection, or valuation; to grant annual leases and commonage within hundreds, not being within the limits of municipal corporations or district councils. The lessees to make stock returns when lands are held in class II. under any Act in force before the 17th of November, 1886, as under previous Act; and lessees in class III., and lessees in class I. and II. whose leases have been granted on or since the 17th day of November, 1886, or shall be hereafter granted; or, in the absence of the lessee,

the overseer shall send in returns within twenty-one days from the 1st day in February, April, June, August, October, and December of each year to the Commissioner, through the medium of the General Post Office, a statement or return, in the form of schedule A to the Act, of the number of all sheep and cattle (if any), not being the property of such lessee, which at any time during the previous two months were actually upon or depasturing on the pastoral lands included in his lease: The return to give names and addresses of owners and persons in charge of such sheep and cattle, as far as the same can be ascertained; such return to be made in all cases whether sheep and cattle have been depasturing such lands. Where contiguous lands are included in more leases than one, the statement may be made as if the whole of the lands were included in one lease; persons making a false statement will be subject to a forfeit for every offence of not more than fifty pounds, and it shall be lawful for any person, acting under the authority of the Commissioner, to yard or paddock such sheep or cattle for the purpose of inspecting and counting the same. The owners of travelling stock were required to pay fees in pursuance of the 84th section of the Act, or the persons in charge of the stock were liable; and if such owner is not the holder of a pastoral lease, or if such owner cannot be ascertained, the Commissioner may, by writing under his hand, authorise the ranger, trooper, or person acting, to demand from the owner or person in charge of such sheep or cattle one penny per head for every sheep, and sixpence for every head of cattle, and if he refuse to pay, the amount may be recovered by sales as therein provided. Provision is also made for pastoral lessees to recover from the owners of stock depasturing the lands of such lessees without their authority: sixpence for every hundred sheep, or every twenty head of great cattle, or portions of such number of sheep or cattle for every day the stock may be upon such land, and to recover the penalties or payments as therein provided. The Government may accept surrender of any lands in a pastoral lease if contiguous lands held by the same lessee have been resumed, and in the event of such surrender being accepted the lessee shall be entitled to the payments for improvements thereon, as if such lease had expired by effluxion of time. No person whose pastoral lease has been forfeited shall be again permitted to hold a lease of such lands, or any interest therein, under pain of forfeiture of the lease.

"Part V. relates to leases and licences for mining purposes. It provides for granting mineral leases in blocks not exceeding eighty acres to any person or company who shall first apply for the same. The lease is for a term of ninety-nine years, and enables the lessee to mine for and remove all minerals and metals upon the leased lands except gold, and should there be improvements upon the land applied for they must be paid

for by the applicant before the lease is prepared. The rent reserved is one shilling per acre per annum, and sixpence per pound sterling on the net profits; to ascertain the amount of which returns require to be sent to the Commissioner in June and December in each year, false returns involving a penalty of not less than fifty nor more than five hundred pounds. The Commissioner has the right to inspect books and papers belonging to and connected with the mine, and any obstruction to such inspection involves a penalty of from twenty to one hundred pounds. The rent, with 2½ per cent. on net profits, is required to be paid on the 28th day of February and the 31st day of August in each year of the term. The land must not be put to any other use than mining purposes without the consent of the Commissioner. Six pounds must be expended in working the mines every two years, for each acre comprised in the lease, and one man must be employed for every twenty acres, or part of twenty acres, demised, and that the lessee must afford the Commissioner satisfactory evidence that such conditions have been complied with. The mineral lessee must also give to any adjoining occupier of pastoral land free access to any natural water or spring upon the land for the use of his stock. Mineral lessees of contiguous lands may give notice to the Commissioner that they wish to surrender such lease and receive a consolidated lease in lieu thereof, or leases may be amalgamated, and one or more leases be given in exchange for the leases surrended for amalgamation. Every mineral lessee may surrender his lease on giving notice to the Commissioner of his intention to do so in writing.

"Specific mineral licences may be granted by the Commissioner on payment of twenty shillings to search for metals and minerals, except gold, upon any specific mineral lands not exceeding eighty acres in extent; the licence to be for twelve months, and the licencee to have authority to search and mine the land and remove, for purposes of analysis only, minerals or metals, except gold, not exceeding one ton; this quantity may, however, be extended to twenty tons by consent of Commissioner. The holder to have during the currency of his licence a preferential right to a lease of the land included in his licence; but no person shall hold more than eighty acres under such licence at one and the same time. Every licencee shall keep at least one man searching for minerals and metals upon the land for a period of nine months of the term of licence, and shall, if required, furnish the Commissioner with satisfactory evidence that this condition has been complied with, or his licence and all rights thereunder shall be absolutely forfeited. A general licence may also be granted by the Commissioner on payment of a fee of twenty shillings for twelve months, renewable for a further term of twelve months,

to search for metals and minerals, except gold, upon any mineral lands. The licence to be for a period of twelve months, authorising the holder to search for and remove, for the purpose of analysis only, one ton of any mineral or metal except gold, and the holder shall have a preferential right during the currency of such licence to a mineral lease or leases not exceeding eighty acres, on which he may have discovered minerals or metals, subject to similar rents and conditions as under specific licence. No mineral licence shall include or apply to any lands held or occupied for gold mining purposes. The holder of any gold mining lease shall be entitled to mineral lease of the land comprised in his gold mining lease. The holder of a mineral lease shall be entitled to a renewal of his lease on its expiry by effluxion of time on payment of a fine or premium to be fixed by valuation. Should a lease expire by effluxion of time, and the lessee not be desirous of securing a renewal of his lease, the land comprised therein may be offered at public auction, in one or more blocks, at a price to be fixed by the Commissioner. Specific licences may be surrendered, and registered companies may hold not more than twelve leases. Lessees under gold mining leases issued under previous Acts, may surrender and obtain leases under Act 353 of 1885; and lessees holding contiguous lands under gold mining leases may surrender such leases and obtain new leases after adjustment of boundaries, but of the same lands only.

"Part VI. relates to leases and licences for miscellaneous purposes—it provides for leases not exceeding 640 acres being granted, on such terms as the Governor may think fit, to discoverers of coal, guano, petroleum, or other valuable substance or deposit—not being a metal or metalliferous ore. For the leasing of aboriginal reserves, not exceeding 100 square miles, for a term not exceeding twenty-one years, at such rent and for such other terms as the Governor may think fit, with a right of renewal, so long as it can be shown to the satisfaction of the Governor that the land is required by and applied to the uses of the aboriginal inhabitants of the province. That leases may be granted of any Government buildings, or of any Crown lands, or other lands belonging to or vested in the Crown, for any term not exceeding twenty-one years, and upon any terms the Governor may think fit, for any of the following purposes—that is to say, for obtaining and removing guano or other manure; for removing stone, clay, or earth; for sites for inns, stores, smithies, bakeries, or other buildings for business purposes, in thinly-populated districts; for sites for bathing-houses, bathing places, mail stations, toll or punt houses; for sites for tanneries, factories, saw mills, or paper mills; for sites for wharves, quays, jetties, or landing-places, and for the depositing of materials or produce; for the working of mineral springs; for sites for ship or boat

building, or repairing: for the manufacture of salt; for sites for smelting works, or any other works or purpose approved by the Governor. Such leases must be offered for sale by public auction to the highest bidder, at time, place, and rental, to be fixed by the Commissioner, and of which notice will be given in the *Government Gazette* not less than four weeks before the holding of such auction—passed lots to be open to application at any time—and simultaneous application to be decided by lot. The leases to contain a covenant to use the land *bonâ fide* for the purpose for which it was demised, and such other covenants the Governor may think desirable, and a provision for forfeiture upon breach of any covenant contained in the lease. Lessees holding lands under miscellaneous lease regulations for grazing only, or grazing and cultivation, may cultivate the whole of the land, provided that no timber be cut down without the consent of the Commissioner. Licences may be granted to cut and remove live and dead timber, gravel, stone, clay, earth, or sand, and to enter upon any Crown lands or lands leased for pastoral purposes to obtain and remove salt, guano, manure, shell, or seaweed. The Commissioner, or person authorised by him, may grant licences to enter upon Crown lands, dedicated or reserved lands, leased for pastoral purposes, for fishermen's residences, and drying grounds for manufactories, fellmongering establishments, slaughterhouses, brick or lime kilns, or saw mills, for depasturing such lands, except land leased for pastoral purposes, with cattle, sheep, or other animals, for any of the purposes for which leases may be issued under Part VI. of the Act, and for any other purpose approved by the Commissioner. Licences to be for twelve months, and subject to such restrictions as the Commissioner may see fit to impose; and the Commissioner may, by notice in the *Government Gazette*, cancel such licence, which shall become void, and persons continuing to act under such cancelled licence shall be subject to prosecution as if such licence had not been granted.

"Part VII.—Part VII. provides for granting leases of small blocks of land not exceeding twenty acres in area to working men. These blocks may be portions of Crown lands or aboriginal reserves, except the reserves at Poonindie, Point McLeay, and Point Pearce. The area of each block must not exceed twenty acres. They are to be taken up by working men only who gain their livelihood by their own labor, and who have attained the full age of eighteen years. The lease shall be for a term of twenty-one years with a right of renewal for a further term of twenty-one years. The lessee may complete purchase by payment of the amount fixed at termination of the first term of twenty-one years, and at any time during the second or renewed term of lease. The rent to be paid annually in advance, under penalty of forfeiture if three months in

arrear; payment may, however, be extended by the Commissioner, as also the time and period of residence—which should be nine months out of every year, the lessee not to transfer or sublet without the consent of the Commissioner. If leased land is on or forms part of a travelling stock reserve, lessee cannot impound stock trespassing until he has enclosed his land with a fence at least 4ft. in height and sufficiently substantial to resist cattle and sheep from trespassing.

"Personal residence by the wife or any member of the family of any lessee shall be considered as personal residence by the lessee.

"Part VIII.—Part VIII. relates to frauds at auction, and renders persons agreeing to prevent fair competition, or to pay more than 2½ per cent. commission to person or agent purchasing land, or to take or receive money under illegal agreement for such purpose, or endeavor to force or induce making agreements for the purpose of preventing fair competition, liable to penalties set forth in such part of the Act.

"Part IX.—Part IX. of the Act refers to miscellaneous provisions, and abolishes conditions of cultivation and for personal residence—except in cases of leases held with right of purchase; provides for completion of purchase of lands held by lessees after expiry of six years from date of lease; for the granting of perpetual leases only of lands granted for educational purposes—the rent and allotments—also reductions in cases where the rents are excessive, by the land board for the district in which the land is situated; to mortgages of land; to disability of person under eighteen years of age to hold lands under agreement, unless as the personal representative of a lessee or licencee; to appoint places for land offices for the receipt of applications for land and conduct of sales under the Act; and to appoint persons and times of sales, due notice of such being given in the *Government Gazette*; the auctioneer to conduct sales without auctioneers' licence; power to Commissioner to withdraw lands from sale and to re-offer such after due notice in the *Government Gazette*; Commissioner may decline to accede to any application for purchase of lease with right of purchase of any lands known or supposed to contain gold, silver, copper, or any other mineral, or which it may be desirable to reserve for public purposes; Commissioner to have care and control of all lands reserved, or lands dedicated by the Governor to any public purpose, except lands under care and control of municipal corporations or district councils; Commissioner, or person authorised by him, may enter upon leased lands in search of water; may resume a square mile for such purpose, and lease the same after obtaining water, compensation being paid to lessee for improvements thereon; on such resumption, lessee of resumed portion to keep well and other improvements in good and tenantable repair, erect and keep a house of

accommodation thereon, and appliances for the supply of the travelling public and stock with water, and to charge for water at rates fixed by the Commissioner; giving power to the Commissioner to reclaim swamp lands, and to construct watering places thereon available for cattle and sheep; to provide for payment of fines of 5 per cent. where rents are not paid on or before the date fixed for payment thereof, and a further penalty of 10 per cent. if the rent should not be paid within one month of time appointed for the payment; and for recovery of rent and penalty should rent and penalty still remain unpaid after that period; to forfeit any Crown leases of lands the rent of which is not paid within three months of the time specified for such payment; to eject persons being in illegal occupation of Crown property; to rescind forfeiture or cancellation of leases of Crown lands or education lands, &c., on such terms as he may think fit, and to waive forfeiture in certain cases; to remit conditions in certain cases, and to receive overdue moneys; to grant leases and licences, with the consent of the municipality or district council in which such roads are situate; to grant mineral leases on lands previously leased by the Crown with or without right of purchase, and to supersede or except such new lease from the lands included in the previous lease to the extent of the land so granted; to grant sites for public purposes, such as school, church, chapel, institute, or hospital, or for any other public or charitable purposes, from an agreement or lease held under the Crown Lands Act, on the application of the holder, such sites not to exceed two acres for every one of such purposes, or where such holder or lessee shall desire such to be done; to grant sites for a blacksmith's shop, carpenter's shop, mill, store, or post office, or for any other purpose approved by the Governor; provided that such land shall not exceed half an acre for any one such purpose, and that no such grant shall be made of land situated within five miles of any town lands, and the Governor may require security to be given that the lands be used for no other purpose than those contemplated, the value of which were to be paid for on application; the Commissioner has power to give permission to any person to erect gates on roads, not being main roads nor within the limits of any district council, and may let the right of depasturing such road or way; any person injuring or destroying any such gate or opening, and not closing the same, to be liable, for each and every such offence, to a fine of not more than fifty pounds, or to imprisonment, with or without hard labor, for not exceeding six months. The Fencing Act, 1865, to apply to all lands under agreement and to all lands leased under any of the Crown Lands Acts (except lands held under miscellaneous lease for other than grazing or cultivation purposes), the fence to mean any ordinary fence sufficient to resist the trespass of cattle

or sheep. Provision is also taken to enable any lessee (except a lessee of mineral lands who may have erected a rabbit-proof boundary fence, or made an ordinary boundary fence rabbit-proof), shall be entitled to recover half the cost of such fence from the owner of the adjoining land so soon as he shall avail himself of the use of such rabbit-proof fence within the meaning of the Fencing Act, 1865, provided that notice of intention to erect such fence be given to the owner of adjoining land at least one calendar month before such fence is erected or made rabbit-proof. Valuations under Part IV. of the Act to be made by a valuator appointed by the Governor, by whom such valuations shall be approved; all other valuations under the Act, except those to be made by the land board, shall be determined in cases of dispute by two arbitrators of whom one shall be appointed by the Commissioner and the other by the persons entitled to compensation or payment. In cases of the arbitrators not being able to agree, an umpire to be appointed by them before entering into consideration of the amount of compensation or payment. Either party failing to nominate an arbitrator within seven days of notice in writing so to do shall have been given him by the party, or shall name an arbitrator who shall refuse or neglect to act, then the arbitrator named by the other party shall make a final decision alone. Any lessee under the Crown Lands Act may surrender his lease at any time during the currency thereof in a form prescribed by the regulations, and a new lease shall be prepared in the name of person or persons nominated by the lessee surrendering such lease. The new lease to be for the remainder of the term, and to contain similar terms and conditions as were contained in the surrendered lease. The Commissioner to have power to sell unbranded wild cattle over twelve months old feeding upon Crown lands and having no reputed owner, either by public auction or by private contract, provided that notice of such sale be given in the *Government Gazette* at least one month prior to the date of sale. The purchaser to be authorised by writing under hand of Commissioner to take possession of such cattle, with proper assistance, within two months of the date of sale, or such further time as the Commissioner may, in writing, allow. Executors or administrators of any purchaser from the Crown on credit or any lessee from the Crown having a right to purchase any lands from the Crown may, with the consent of the Commissioner, mortgage such lands to complete the purchase. The Commissioner may cause erroneous plans attached to any lease of the Crown to be corrected at the expense of the lessee, and to attach such corrected plan to the lease, and the plan so attached being signed by the Commissioner shall form part of lease and the parcel taken to refer to such corrected plan. The Commissioner may charge reasonable fees for anything done under the Act, as may be

fixed by regulations, and the Governor may, from time to time, make such regulations for carrying out the provisions of the Act. Such regulations when published in the *Government Gazette* to have the force of law.

"Part X.—Part X. relates to legal procedure, trespass, and penalties, provides for the appointment of Crown lands rangers, and defines their duties, to make entrances on, and serve notices respecting Crown lands, to impound sheep and cattle trespassing on Crown lands and to destroy pigs so trespassing, to lay informations against persons allowing sheep or cattle illegally to depasture on Crown lands, educational lands or reserves; to prosecute owners of travelling stock whose stock when travelling *bonâ fide* shall not travel the prescribed distance of five miles each day, and to recover the penalties therefor; to prosecute and recover penalties from persons whose stock are depasturing Crown lands, &c., without having a valid licence, or in excess of the quantity of stock in virtue of which they may be entitled to pasture; for the first offence a sum not exceeding £5, for the second a sum not less than £5 nor more than £10, and for the third and every subsequent offence not less than £20 nor more than £100, and, in addition thereto, for each offence the sum of 3d. per head for every sheep, goat, or pig, and 1s. 6d. for every head of cattle unlawfully depasturing. Persons who shall unlawfully occupy any land belonging to or vested in the Crown, by residing, erecting a building or hut thereon, or by clearing, enclosing, or cultivating any part thereof, or who shall knowingly make any false statement with regard to commonage in hundreds, shall be liable for the first offence to a penalty not exceeding £10, for the second offence a sum not less than £10 nor more than £20, for the third or any subsequent offence a sum not less than £20 nor more than £50, provided no information for a second or following offence be laid until fourteen clear days from the date of the previous conviction; provides penalties for persons injuring, cutting, or removing timber from Crown lands or reserves without a valid licence; or quarrying and removing metals, ores, stone, sand, gravel, or other material; for injuring or removing landmarks; for obstructing roads or ways, or obstructing authorised persons carrying out duties entrusted to them, and for forging, counterfeiting, or altering any lease, grant, proclamation, licence, &c.

"Act 444 of 1888 was amended on the 6th December, by the Crown Lands Amendment Act, No. 472 of 1889. This Act is divided into four parts. Part I. Preliminary; Part II. contains provisions relating to surrender and exchange of agreements; Part III. The provisions as to the erection of rabbit-proof boundary fences; and Part IV. Miscellaneous.

"Part I. gives an interpretation of the term lands reserved for leasing, as described in the schedule to the Act, referring to south-east lands

within hundreds, and seven miles on each side of the railway from Wellington to Tatiara, outside hundreds.

"Part II. repeals section 41 of the principal Act respecting scrub leases or lands held under agreement being exchanged for a perpetual lease or lease with right of purchase. Explains how the rent is charged under section 40 of the principal Act, as from the expiration of the third year from the date of the original agreement or lease. How moneys paid shall be credited. The persons surrendering having elected to take a perpetual lease, shall be credited against rent payable under the new lease with the whole amount paid on account of the purchase-money, or purchase-money and rent, for such lands, except the first deposit of 10 per centum. If the person shall have elected to take a lease with right of purchase he shall in like manner be credited, as against rent, with the amount so paid, except the first deposit of 10 per centum, and in the event of his exercising his right of purchase before the amount of credit shall have been exhausted, he shall be credited with the balance as against the purchase-money: Provided that in either case such credit shall not cover more than twenty years' rental of such land, according to the rate fixed by the land board. As to the other lands surrendered, the person surrendering shall be credited against rent, or against rent and purchase-money, as the case may require, with all money paid to the Crown as shall be in excess of 10 per centum on the amount at which he was originally entitled to purchase the land: Provided that no such credit shall be given unless all moneys payable for the lands held by such person in respect of the first three years' occupation of such lands shall have been previously paid; nor shall any such credit be given contrary to the terms of the proviso to sub-section 1.

"Persons holding land under agreement with right of purchase before the Crown Lands Act, 1888, came into operation may, within twelve months of the passing of Act 472, 1889, apply to the Commissioner to have the price he has agreed to pay reduced, and the Commissioner shall submit such application to the land board for consideration, and on their recommendation reduce the purchase-money; but in all other respects the agreement shall remain in force, and any previous payments on account of purchase-money shall remain to the credit of such person, such credit being applied solely as against rent and purchase-money, or rent, as before provided.

"Part III.—Part III. relates to provisions as to erection of rabbit-proof boundary fences, and provides for the erection of such fences as abut on Crown lands being made by district councils by means of a loan from the Commissioner, the funds for which are to be provided by Parliament, and the moneys being expended to the satisfaction of the Commissioner; or

the Commissioner may erect such rabbit-proof fence on such portions of the boundary line of any district council as shall abut on any Crown lands. The amount expended by the district council or by the Commissioner in erecting such fence to be a debt due by such district council to the Commissioner, to be repaid by such council by ten annual equal amounts, without interest, to the Commissioner, the first annual payment to become due and payable at the expiration of twelve months from the date when such loan was granted or expenditure incurred, as the case may be. Such annual payments shall be a charge upon the annual rates of such district council. The Governor may, from time to time, make regulations for any of the purposes of the Act, for providing the nature of the rabbit-proof fences to be erected, the mode of applications for loans, and the nature and form of the securities to be given by district councils for carrying out this part of the Act. It also provides for notices to the owners and occupiers of land infested with rabbits to destroy the same, and for the Commissioner of Crown Lands or any district council, or any person authorised by the Commissioner or district council, to erect a rabbit-proof fence across any road or roads specified in such authority, provided that there shall be a gate of a width of at least 10ft. in any such fence. Persons wilfully injuring or destroying any rabbit-proof fence, or any part thereof, shall be liable to a penalty not exceeding twenty pounds, or to be imprisoned for any term not exceeding six months. Persons wilfully or negligently leaving any such gate open to be liable to a penalty not exceeding five pounds. Proof that there are on any land burrows showing signs of the presence of rabbits shall be *primâ facie* evidence of the existence of rabbits on such land, and proof that these signs are not diminished shall be *primâ facie* evidence that the occupier is neglecting what he has been required to do by notice which has been served upon him under provisions of the Act.

"Part IV.—Part IV. relates to miscellaneous conditions, and provides for forest leases to be adjudicated upon by land boards. That the rent on such lands may be remitted or reduced. That reclaimed lands may be leased on such terms and conditions as the Commissioner may consider desirable, the rent being fixed and the land allotted by the land board. That any person who has surrendered his or who shall hereafter surrender his agreement or lease, under Part II. of the principal Act, shall have a right of appeal to the Commissioner against the decision of the land board fixing the amount of rent and purchase-money, or either (as the case may be); and the Commissioner shall, on receipt of such appeal, refer the same to the land board for reconsideration and a report thereon, and may, after receiving such report from such land board, reduce the rent and purchase-money, or either, so appealed against, as, in his opinion, the case

may require; provided that such appeals be made within six months of the passing of the Act, and that all other appeals shall be made within six months of the notification to the lessee of the amount of the rent, or rent and purchase-money fixed by the board. Land boards may require evidence to be given on oath. Persons convicted of false evidence to be punished as for perjury; to be imprisoned with or without hard labor for a period not exceeding four years. Affirmation may be received in lieu of oath, and may be administered by any member of a land board. Governor may except suburban lands from being dealt with by land boards, and where such lands may be altogether withdrawn from the jurisdiction of land boards. The lands may be sold by auction for cash, in the same manner as town lands. All applications for the transfer of any lands that have been allotted by any land board to be referred to land boards for advice, and no transfer shall be allowed until after notice of such application shall have been inserted for four weeks in the *Government Gazette*. Not more than 1,000 acres of land reserved for leasing, with right of purchase, shall be held by any one person. Provision to fix upset price of pastoral lands that have been offered at auction and been twice reduced without being sold with the advice of land boards. Exempting applicants from enclosing 20 per cent. of first year's rent with application for consideration of land board, when such amount is under £1 sterling; by amendment of principal Act allow completion of purchase on six years of working men's blocks; amendment of section 22 of the principal Act as to payment of first year's rent, preference to be given by land boards to applicants who agree to reside, provides for improvements made by lessee on lands held for the manufacture of salt being added to upset price and disposed of in new lease. Provides for the sale of pastoral leases after expiration of date fixed by previous Act, and upon the conditions and terms of leases offered as prescribed by such previous Acts; and for the offering leases of contiguous lands to the lessee for terms not exceeding three years, and at a rental to be fixed by the Commissioner, without such leases going to auction. For a lessee to surrender two or more blocks of land included in the same run; the lessee may surrender the leases of such blocks and obtain one lease in lieu thereof, and, with the consent of the Commissioner, the improvements necessary to entitle the lessee to the deposit of 10 per centum paid on account of improvements, may be made on any part of the land included on such lease. Provides for the correction of a clerical error in section 116 of the principal Act by substitution of the word 'therein' for the word 'herein' in the fifteenth line of that section. Amends section 131 of the principal Act as though the words 'under this part of this Act' had been omitted.

Amending section 20 of the Woods and Forests Act, 1882, and substituting the words 'forty-two' in lieu of 'twenty-one' in the second line of the said section; and providing for Act 472 of 1889 and 444 of 1888 being read and construed together as forming one Act. . . .

"The method of applying for lands as provided in the present Land Acts 444 of 1888 and 472 of 1889 may be summarised briefly as follows:—

"All questions relating to lands, except as to policy, should be referred to the Surveyor-General either by letter or personally, and appeals against the decision of that officer should be made either personally or by letter to the Commissioner of Crown Lands.

"Applicants wishing to obtain town, suburban, or special country blocks should apply to the Land Office, where the chief clerk or subordinates deputed for the purpose will afford every information, receive applications, and arrange for the gazetting of such lands as can only be purchased at auction. In cases of doubt these officers will refer to the chief clerk or Surveyor-General, in order that full information may be promptly and correctly given. Lands requiring to be offered to competition by public auction must be included in a list of lands which should appear in the *Government Gazette* for not less than four weeks prior to date of sale. Intending purchasers should attend the sale, which is held in the Land Office, either personally or by their agents, and bid for the land required by them—the purchaser paying 20 per cent. at the fall of the hammer and the balance within a month from the date of sale. Should it be inconvenient for an applicant to attend at the Land Office personally, he should write to the Surveyor-General, specifying the lands required by him, and he will receive an intimation when the lands will be offered at auction, or, should the lands be withheld from sale, the reasons therefor.

"Applicants for pastoral lands, or for lands to be leased by allotment under land board regulations, should make similar application, either personally or by letter; the pastoral leases required being gazetted for sale by auction, as in the case of town and suburban lands; and the application for lands to be dealt with by land boards will be referred to and dealt with by such boards, whether for lease with right of purchase or perpetual lease, and whether for ordinary lands, lands in reserved district, drainage lands, or working men's blocks; notice, intimating the size and price of block and date up to which applications will be received, duly appearing in the *Government Gazette*, and subsequently of places where the board will meet the applicants for such lands, and, after due inquiry, will proceed to allot the lands to the applicants, as provided by the Act and regulations. In all cases of this nature forms of applica-

tion can be had at the Land Office, as well as at post offices and district council offices, or local courts in the country. These, when filled in, may be addressed to the Hon. Commissioner of Crown Lands, by whom they will be referred to the Land Office for the necessary detail and action prior to their being finally dealt with by the land boards. Each applicant should specify in the application whether he intends to reside personally on the land, and whether he wishes a lease with right of purchase, or perpetual lease. In the case of education lands a perpetual lease only can be obtained, and of forest lands a lease for a term of forty-two years.

"Persons wishing to apply for remissions of rent or reduction in rental, or rental and price of purchase under which such lands are held, should appeal in writing to the Commissioner of Crown Lands, by whom such application will be referred to the Surveyor-General for necessary detail. On such being furnished, the appeal will be dealt with by the land board, and the amount of reduction or remission (if any) duly intimated to them. Applications for leases or licences to search for and remove coal, mineral oils, mineral ores or metals, or new discoveries of value, entitling the discoverers to a lease without competition, should be made personally or by letter to the Land Office or Surveyor-General. In the case of mineral leases or licences, except gold, the applicants should first peg out the land upon which discovery has been made, fix the position of datum peg, and as well as possible, by reference to natural features in the locality or by bearings to known hills, station wells, buildings, springs, marked trees, &c., or to trigonometrical stations; then, leaving a trusty agent or partner in possession, proceed to the Land Office and make application for lease or licence, as he may desire, on obtaining which operations may be commenced; but it is essential for the security of the applicant that he should not leave his discovery unguarded for a single day, as, should he do so, his pegs may be removed and another applicant or person desirous of getting the lease may peg out, make a declaration that he saw no other pegs than his own upon the ground, and that no one adverse to him was in occupation when he pegged out the land, and thus obtain possession of the discovery made by the prior applicant, or, should he fail to do so, causing trouble and annoyance to the office and the real discoverer, and should the discovery be of value, inducing litigation to secure at least a portion of the profit. Applicants for gold leases require to insert notices of their intention in the *Government Gazette* and public papers, subsequently applying to the gold warden, as provided by the Gold Mining Act regulations. The warden will also issue miners' rights, prospectors' licences to search for gold as therein directed.

"Permits are frequently granted, on receipt of applications, to enable persons making discoveries to fix the exact spot or locality which they wish to lease. These permits, though not strictly legal, possess the advantage that, whilst interfering but little with the stock of the pastoralist, they aid in the development of discoveries that may prove of incalculable value to the country, if successfully developed; and, should search prove the discovery to be of but little value, the right of search under the permit expires, and the pastoral lease continues as if such permit had never been granted. Were this policy not adopted, the land would have to be resumed from the pastoral lessee when any such claim was made, entailing loss to the State by compensation requiring to be paid, and also to the pastoral occupant of the land, as leases granted for such purposes generally supersede the leases held for depasturing purposes on such lands. In the Land Office officers are set apart to deal with applications for pastoral, mineral, and other classes of land, and on application to any of these the applicant will be directed to go to the proper officer, from whom the desired information can be obtained. The walls of the office are hung round with plans showing pastoral districts, mineral lands, and lands within hundreds, arranged alphabetically, under distinctive symbols or tints, that materially aid in giving information that may be desired by the public. The books of credit and other lands, except such as have been purchased for cash, are also arranged so that the lands selected or held by any person whose name is furnished can be given with but little trouble or delay. Recently, due to the changes in the land laws and the difficulty in training new people, delay has occurred in several branches of the Land Office, more especially those dependent upon the land board transactions; but, fortunately, these are being gradually overcome. Persons failing to obtain satisfactory information from the Land Office should see the head of the department, or officer acting for him in his absence, when full detail generally can be obtained

"Plans of lands to be disposed of by auction for pastoral purposes, sale, or lease under land boards are sent to local courts and district councils as well as full detail given in the *Government Gazette*, and copies of such plans can be had at the Land Office, on application, either colored or plain, at little over the absolute cost of production. Information involving long references and clerical work should, however, be obtained by clerks or agents, to whom facilities are given for such purposes, the officers being too busily occupied to enable them to give the time requisite for compiling and giving such information in a written form.

"Copies of all plans deposited by order of Parliament—of corporate towns and district councils, lines of railway, and roads opened, closed or exchanged—can be seen on reference to the Land Office. These docu-

ments, as well as all office plans, can only be copied in pencil, as it is essentially necessary to preserve them as far as possible from injury, which could not be done with such certainty were ink permitted to be used.

"Persons desirous to obtain leases under land boards—of lands not yet surveyed, and of special or particular form and area—should state such to the clerk in the Land Office, or by letter, on receipt of which the proper steps will be at once taken to comply with his request, so far as such is consistent with the regulations.

"As moneys forwarded to the department with applications for lands, leases, licences, &c., may be paid into Treasury on receipt, and in the event of the application not being complied with, cannot always be returned at once, an account for repayment and approval must be obtained before such can be done. This inconvenience cannot well be avoided, as, where so many letters sent in contain money, and these cannot be always summarily dealt with, the rule is to pay most sums into the Treasury, as it is undesirable that the receiver of revenue should add to his anxiety by retaining large sums of money—pending settlement of question—either in hand or by suspension account, and where such can be, the system is avoided.

"Information respecting credit agreements still in force, and education leases, can be had on application to the Inspector-General of Credit Lands, and Secretary Crown Lands Department; respecting mines and gold leases, to the Inspector of Mines and Warden of Goldfields, Crown Lands Office.

"Notices under the Act of intention by pastoral lessees to construct improvements to increase the carrying capabilities of the leased lands for pastoral purposes are addressed to and recorded by the Surveyor-General, by direction of the Commissioner. . . . .

"The only recent additions to the laws relating to lands are Act 478/90, relating to vermin-proof fencing, and Act 515 of 1891, to provide for loans to the lessees of working men's blocks, and for other purposes. The former Act only relates to lands as regards vermin-proof fencing. It authorises the Government to enclose Crown lands within hundreds out of funds voted for that purpose, to pay half cost of enclosing private lands abutting on Crown lands, and to supply netting to owners of private lands within a specified date; the value to be repaid by ten equal yearly instalments, without interest; Government to advance moneys to district councils, to supply wire netting to residents on petition; the district councils to be responsible for repayment of advance as specified.

"The Blockers Loan Act, No. 515 of 1891, provides for a Parliamentary vote not exceeding £10,000, to be operated on by the Hon.

Commissioner in making advances to blockholders, to assist them in erecting buildings and making permanent improvements on their blocks; the advance not to exceed one-half the cost to the blockholder of the permanent buildings then existing in good repair on his block; the amount advanced to any lessee not to exceed £50 at any one time; the loans to be repaid by instalments at the commencement of the fifth, sixth, seventh, eighth, and ninth years respectively from date of the advance, which time, in cases of hardship, may be extended by the Hon. Commissioner; interest is payable at the rate of 5 per cent. per annum on the amount of loan. It also provided for the indorsement by the Commissioner of leases to protect blockholders' interests from incumbrance or seizure, keeping accounts, and penalty for fraud or false representations.

"The regulations now in force dealing with lands in the province are:—Relating to ostrich farming, dated February 14th, 1883; gold mining, February 15th, 1888; Crown lands, dated February 24th, 1891

"Persons wishing to obtain land should apply by letter or on application form to the Surveyor-General, giving full detail as to locality and area, or personally to the chief clerk in the Land Office.

"Applications to have lands dealt with under Part II., Act 444 of 1888, are, on receipt, referred to the land board for the district in which they are situate. The board recommends the sizes and prices, and after approval the necessary surveys are effected by the Survey Department, on completion of which plans are prepared and the lands gazetted for application. On a date specified applications and deposits of 20 per cent. (if the annual rental is over £5) are sent to Crown Lands Office. Detail of the holdings of each applicant is marked thereon, and the applications referred to the land board for allotment on the date specified in terms of the *Gazette* notice.

"The boards allot working men's blocks and ordinary lands on perpetual lease or lease with right of purchase, but leases of land in auriferous districts or within water areas are granted by the boards under perpetual lease only, as also are educational and forest lands. Leases of forest lands are for a term of forty-two years without right of renewal.

"Transfers of land held under Part II. of the Act are only approved by the Commissioner on the recommendation of the land board after four notices of intention to transfer having been published in the *Government Gazette.*"

"The issue of leases for working men was first suggested by the Hon. G. W. Cotton, M.L.C., as a means to help working men, and from whence they might go to work and return when work was no longer

procurable in the neighborhood their spare time being spent in cultivating portions of the land, which would enable them to keep a horse, cow, fowls, and pigs, and grow vegetables and fruit, and providing milk, butter, eggs, vegetables, fruit, bacon, and a comfortable home for themselves and their families; and so far the object has been successful; for, although a great many of the blocks have been dummied by adjacent owners, and others been applied for by persons under age, these defects are being gradually remedied, and, so long as the first object is kept in view, the occupation of these lands will continue successful. Suburban and other available lands conveniently situated were offered and taken up under the regulations, and on the 1st June instant there were, as stated above, 1,544 of these blocks held under lease, representing 24,731 acres, and realising the annual rental of £2,208, or an average rental of nearly 1s. 10d. per acre. These lands include blocks suburban to existing towns, aboriginal reserves within a few miles of Adelaide and other towns, as well as the hilly lands of Noarlunga, Kuitpo, and Onkaparinga. Some of these lands, valued at the same rate as adjoining lands held by private owners, were worth from £40 to £80 per acre, which, averaged with other lands of less value, appear to give a high rate per acre. The hill lands are rough, but are intersected occasionally by rich bottoms of vegetable soil, and with small springs that render the blocks doubly valuable; and whilst these little swamp flats will do for the growth of fodder and vegetables, potatoes, onions, &c., the hillsides should grow fruit trees quite as well as they now do a forest of stringybark, which would appear to be the indigenous vegetation of the district so far as timber is concerned, and furnishes, not only firewood and fencing, but also shingles and building materials for their houses, which, with the stone and lime also available, should prove of great value to these lessees, There are several persons holding lands of this class personally known to me as neighbors, who are hard-working, trustworthy, and very intelligent men; these find ready employment when not engaged upon their blocks. Others have a sufficient area of cultivable land as to require all their time; but it would be better if, even in the hills, a few country residences were scattered about, where the working men might at certain seasons obtain renumerative employment. It is an uphill game for many of the poor fellows, but those who are willing and strong are pretty sure to do well, and, it is to be hoped, will be able to resist the temptation of selling when the short period of six years has elapsed, after which they can complete purchase and the land will become their own to do as they like with. I think it is a pity that the strips of land reserved for the use of travelling stock in some of the districts, where the soil and rainfall are suitable, have not been set apart for the purpose of blocks of this nature.

There are many of these strips too stony and rough for this purpose, such as lands from the Murray Bridge to Meningie; but there are other belts of land, in equally favored districts as to climate and rainfall, where the soil is suitable, and where a sufficient area might be spared to give blocks of this kind every few miles, which, in some cases, might go far to keep a family if properly cultivated, although this remark does not apply to the plains outside the line of rainfall. Of the 1,366 blocks held on the 1st June, 1889, the residence conditions were only complied with on 675, not quite half, and I fear that this proportion has not yet increased. It has often occurred to me that a great mistake had been made in granting too large blocks of land to men of small means, the mere cost of fencing which plunges them into debt and keeps them poor for a series of years. As a rule, the smaller the area a man holds for cultivation the greater the amount of skill and labor is expended in production, the larger areas being devoted to the growth of grass for depasturing purposes. I do not say that it is more profitable to the individual to cultivate rather than to the depasture the land by stock, or that the profit from beef, mutton, wool, hides, milk, butter, cheese, and bacon or pork will not equal that of fruit, vegetables, &c., &c.; but the smaller area cultivated by many hands, and supporting, clothing, and educating many families, and supporting trade to a greater extent, must be more profitable to the State sooner or later. Then large estates may, as population increases, be sub-divided and sold for farming purposes, but until this becomes more general the lands still available might be utilised more effectually if put into as many hands as possible. It is interesting to know that cultivation in South Australia decreases with the area held by individuals. This may be illustrated in a few lines, thus:—Take the county of Adelaide as the first illustration. Of nearly 1,200 persons holding blocks of from 1 to 5 acres, two-fifths are cultivated; of 702 holders of sections between 100 and 250 acres, two-sevenths are cultivated; of 145 holders of from 500 to 1,000 acres, three-fifths are cultivated; of 46 holders of 1,000 to 2,000 acres, one-ninth is cultivated; and of three holders of 4,000 to 5,000 acres but one hundred and forty-sixth portion is cultivated. In the county of Gawler 223 holders of 500 to 1,000 acres cultivate one-half, whilst two holders of 10,000 and 20,000 acres cultivate but one three hundred and fifty-eighth portion." In the county of Frome 366 holders of from 500 to 1,000 acres cultivate half, whilst five holders of from 10,000 to 20,000 acres cultivate but one hundred and fortieth part. In county Grey 219 holders of from 100 to 250 acres cultivate a fourth, 18 holders of from 5,000 to 10,000 acres cultivate one-sixtieth, whilst four owners of from 20,000 to 30,000 do not cultivate any land beyond a few acres for garden purposes."

CHAPTER XV.

Census of South Australia—Periods at which Taken—Census of 1891—Census Table from 1844 to 1891—Distribution of the Population—Number of Dwelling-houses—Area Occupied by the People—Cities and Towns, District Councils, &c.—Increase of Population—Effect of Mineral Discoveries—Of the Proclamation of Agricultural Areas—The Broken Hill Mines—Stoppage of Immigration—Its Effect—Births in South Australia—Actual Number for Ten Years—Rate for Ten Years—South Australia Compared with other Countries—Marriage Rate—Proportion of Births to Marriages—Legislation with Regard to the Public Health—Outline of the Laws in Force Regulating the Public Health—Central Board of Health—Local Boards—Power of Boards—Deaths in South Australia—Rate for Ten Years—Table of Actual Mortality in each Month for Ten Years—Months of Greatest and Least Fatality—Temperature of each Month—Tables Illustrating the Foregoing—General Causes of Death—Table for Ten Years—Malarial Fever, Smallpox, &c., Non-existent in the Colony—South Australia one of the Healthiest Countries in the World—Death Rate in Age Groups—Relative Proportion of the Sexes in the Province and in England—Infant Mortality in South Australia—Birth Rate in Adelaide and other Capital Cities—Deaths in Adelaide and Suburbs, and in other Cities and Suburbs—Births and Deaths in Australian Cities.

In the year 1844 the first census of the population of South Australia was taken, and after that time a fresh one has been made in every fifth year down to 1881. In the year 1886 it was thought desirable to postpone the enumeration of the people of the province until the period when a general census would be taken for the whole of the Empire. This was done, and in South Australia the forms were filled in on April 5th, 1891. The results of the enumeration have not yet been published in detail. Several parts, however, are in print, and it is expected that the whole will be completed by the end of the present year. It comprises, besides the enumeration of the people in the colony, details of their ages, sexes, educational condition, marital condition, their nationalities, religions, occupations, &c. The analysis is most complete, and fills a large folio volume. From the tables contained therein the principal part of the information contained in these pages has been derived. The number of persons in the province, including the Northern Territory, was ascertained to be 320,431 souls at that date, exclusive of aborigines. South Australia proper contained 310,426; the Northern Territory 4,898, of whom 3,392 were Chinese male adults; 5,107 belonged to shipping—of these 321 were on board vessels in Port Darwin, including 244 Chinese. The subjoined statement shows the

population, male and female, at the date of each census from 1844 to 1891, both inclusive, but not including aborigines.—

Year of Census.	Population.			On Previous Census (Total Population only).	
	Total.	Males.	Females.	Numerical Increase.	Increase per cent.
1844	17,366	9,526	7,840	—	—
1846	22,390	12,670	9,720	5,024	28·9
1851	63,700	35,302	28,398	41,310	184·5
1856	85,821	43,720	42,101	22,121	34·7
1861	126,830	65,048	61,782	41,009	47·7
1866	163,452	85,334	78,118	36,622	28·8
1871	185,626	95,408	90,218	22,174	13·5
1876	213,271	110,491	102,780	27,645	14·9
1881	279,865	149,530	130,335	66,594	31·2
1891	320,431	166,801	153,630	40,566	14·5

The population has thus increased nearly nineteen-fold in the period intervening between 1844 and 1891. In the ten years which elapsed between 1881 and 1891 the male population increased by 17,271, or 11·55 per cent., and the females by 22,699, or 17·47 per cent. The excess of males over females in 1881 was 19,195, or 12·84 per cent., but in 1891 it had decreased to 13,171, or 7·89 per cent. The number of adult males was 84,013. In enumerating the females the adults are not distinguished from those under age.

The inhabitants are distributed in the following way:—The corporate towns, thirty-three in number, covering an area of 47,371 acres, contain 123,167 souls, of whom 59,012 are males and 64,155 females, so that in the centres of population the numerical preponderance of females is 5,143, or about 8 per cent. In the area included in district councils, 151 in number, embracing 27,130,080 acres, the male inhabitants amount to 93,315 and the female to 86,259. The excess of males over females is thus 7,056, or 7·56 per cent. In the remainder of the province there are 7,719 persons, of whom the large majority are males.

The component parts of the population, according to birthplace, appear by the census returns to be as follows:—

United Kingdom	72,064
South Australia	217,730
Other Australian Colonies	11,079
Other British Possessions	1,504
Foreign Countries	16,185
Born at Sea	601
Unspecified	1,268
	320,431

The following are the percentages of the total population :—

Natives of England	14·90	
" Ireland	4·48	
" Scotland	2·77	
" Wales	0·34	
		22·49
" South Australia	67·95	
" Other Australian Colonies	3·44	
" " British Possessions	0.48	
		71·87
" Foreign Countries	5·05	
Born at Sea	0·19	
Unspecified	0·40	
		5·64
		100·00

Of the foreigners Germans are the most numerous, the total number being 8,553, or 2·67 per cent. Next come Chinese, of whom there are 3,997, or 1·25 per cent., and then Swedes and Norwegians, who number 1,157, or 0·36 per cent.

There are 62,742 dwelling-houses in the province, of which 3,775 are uninhabited and 233 in course of erection. This allows about five occupants to each dwelling inhabited. The houses built of stone or brick number 48,319, the remainder being constructed of wood, iron, concrete, &c. In the corporate towns the density of population averages one person to 2·6 acres. In the area divided into district councils the average is one person to 151 acres. In the other portions of the colony, where pastoral pursuits are exclusively followed, there is only one European inhabitant to 437 square miles.

From the table given above it is seen that the apparent increase in the population has not been more than 14·5 per cent. It shows almost the lowest rate recorded since a census of the people in this province was first made. In new countries it is a matter of experience that the population is always of an unsettled character. Mineral discoveries, ever since the goldfields were found in 1851, have invariably been followed by considerable migrations from place to place in and to the colonies in which they are located, and they have added to or taken from the aggregate population in varying numbers, according to the special circumstances of each new development of colonial resources. Alterations in the land laws in South Australia, as well as in other colonies, have had considerable influence on the movements of the people. The mining

towns of Kapunda, the Burra, Wallaroo, Kadina, and Moonta owe their origin to mineral discoveries. The proclamation of agricultural areas in the North drew away large numbers of farmers from other parts of the colony where they had previously been settled, and more recently the discovery of the Broken Hill silver deposits in New South Wales, close to the South Australian border, has attracted a very large number of South Australians to the new fields of commerce and of labor. It is estimated that South Australia has lost quite 12,000 colonists in this direction. This loss naturally told against South Australia when the people were numbered, but, as almost the whole of the trade with Broken Hill and Silverton is carried on by and belongs to South Australia, the low increase of the population is more an apparent than a real fact. Numbers of the people who are employed there as miners and artizans, and others engaged in commerce are South Australians, and many of them have their families living within its limits. If the estimate of 12,000 souls who have left this province to work at Broken Hill is added to the number of persons who were living in South Australia at the time the census was taken in 1891, the increase, which is now set down as 14·5 per cent. in the decade which ended in April of that year, would have been 16·40 per cent.

Another reason why the population has not increased as rapidly as it had done previous to the census taken in 1856 is that immigration at the Government expense has been discontinued for several years. The increase, therefore, has depended upon the excess of births over deaths, and upon such additions as may have accrued from voluntary immigration. The following return shows the number of births registered in the colony for the ten years ending in 1892, as also the excess of births over deaths:—

Year.	Registered during Year.			Number of Deaths.	Excess of Births over Deaths.
	Total.	Males.	Females.		
1883	11,173	5,677	5,496	4,435	6,738
1884	11,847	6,051	5,796	4,789	7,058
1885	12,046	6,070	5,976	3,987	8,059
1886	11,177	5,711	5,466	4,234	6,943
1887	10,831	5,666	5,165	3,944	6,887
1888	10,510	5,501	5,009	3,759	6,751
1889	10,318	5,286	5,032	3,501	6,817
1890	10,364	5,222	5,142	3,923	6,441
1891	10,737	5,481	5,256	4,211	6,526
1892	10,544	5,227	5,317	3,711	6,833

The table below gives the birth rate in the province for the ten years included in the above:—

Year	Per 1,000 of the Population.
1883	38·01
1884	39·04
1885	39·03
1886	36·82
1887	35·48
1888	34·40
1889	33·49
1890	33·27
1891	33·92
1892	32·41
Mean per 1,000 for the ten years	35·59

The following tabular statement (extracted from the report of the Registrar-General of Births, Deaths, and Marriages for 1892) shows the rates of births, deaths, and marriages per 1,000 of mean population in the Australasian colonies, the different parts of the United Kingdom, and several other countries. "The figures in the first seven lines have been taken from the returns of the statistical authorities of the different colonies named, for the most part from returns which, on application, were specially supplied to this office. The remainder of the figures have either been extracted unaltered or been deduced by calculation from the returns of the Registrar-General of England, who obtains his information respecting other countries from the several official authorities of those countries:—

	Year.	Births.	Deaths.	Marriages.
South Australia	1892	32·41	11·41	6·51
Victoria	1892	32·54	13·63	6·65
New South Wales	1892	34·41	13·22	6·77
Queensland	1892	35·84	12·66	6·67
Western Australia	1892	32·69	16·46	7·28
Tasmania	1892	32·49	13·53	6·51
New Zealand	1892	27·83	10·06	6·23
United Kingdom (as a whole)	1891	30·40	20·00	7·30
England and Wales	1891	31·40	20·20	7·80
Ireland	1891	23·10	18·40	4·60
Scotland	1891	31·20	20·70	6·90
France	1891	22·60	22·60	7·50
The German Empire	1891	37·00	23·40	8·00
Prussia (separately)	1891	37·70	22·90	8·10
Austria	1891	38·30	28·00	7·80
Italy	1891	37·40	26·30	7·50
Switzerland	1891	28·20	20·80	7·10
Belgium	1891	29·80	21·10	7·50
The Netherlands	1891	33·70	20·70	7·10
Norway	1891	30·90	17·50	6·60
Sweden	1890	28·00	17·10	6·00
Hungary	1890	40·30	32·30	8·20

"The rates for other European countries (Denmark, Spain, &c.) have not been given in this table, because in the returns accessible they are not calculated on mean populations, and no data are given by means of which this defect could be remedied. The deaths of French persons abroad, civil and military, are registered in France, and this, of course, helps to raise the death rate there. It will be seen that, in the comparative statement as it stands, South Australia shows the ninth highest birth rate, the tenth highest marriage rate, and the third lowest death rate. If, however, the seven Australasian colonies alone are considered, South Australia shows the fourth highest birth rate, the fourth highest marriage rate, and the third lowest death rate."

"The following table shows the estimated population in each of the seven Australasian colonies on December 31st, 1892. The numbers given are exclusive of the aborigines, except that, in the case of New Zealand, about 2,100 half-castes, living as Europeans, are included; and that in the case of the other colonies a few entirely civilised aborigines may have been considered and counted as forming part of the ordinary population."

Estimated Population of the Australasian Colonies, 1892.

	Males.	Females.	Total.
New South Wales	641,819	546,951	1,188,770
Victoria	607,476	559,332	1,166,808
Queensland	237,965	183,332	421,297
South Australia proper	171,476	160,245	331,721
" " Northern Territory	4,625	356	4,981
Tasmania	82,009	71,135	153,144
Western Australia	36,095	22,579	58,674
Total Australia	1,781,465	1,543,930	3,325,395
New Zealand	345,146	305,287	650,433
Total Australasia	2,126,611	1,849,217	3,975,828

The subjoined figures indicate the annual marriage rate per 1,000 of the population from 1883 to 1892 inclusive:—

1883	8·64
1884	8·42
1885	7·93
1886	6·51
1887	6·48
1888	6·82
1889	6·69
1890	7·17
1891	7·31
1892	6·51

The Registrar-General, in the report above quoted, says that "It is the opinion of statisticians that if, through a series of years, the number of marriages in each year be compared with the number of legitimate births in the following year a very fair estimate can be obtained of the average number of children born to each married couple. Although the records of a long series of years are required to demonstrate the correctness of this opinion, it is generally only necessary to examine those of a few years to obtain estimates that may be relied on. The following figures show the proportions of births to each marriage in South Australia for seven years:—

1886	4.46
1887	5·34
1888	5·17
1889	4·83
1890	4·90
1891	4·66
1892	4·42
Mean	4·83

"It would seem from this that 4·83 (nearly five) is the average number of children born in South Australia to each marriage. This is above the average of England and Scotland, and below that of Ireland, and in the Australasian colonies is excelled only by the average in New Zealand (5·25). In New South Wales the average is 4·70; in Queensland, 4·60; in Tasmania, 4·51; and in Victoria, 4·22."

"A rise or fall in the marriage rates or in the value of exports or imports is generally regarded as being in some degree indicative of a corresponding change in the prosperity of a country. The following table shows the variation year after year from 1881 to 1892 in such rates and values:—

Year.	Marriage Rate per 1,000 of the Mean Population.	Value per head of the Population.		
		Imports retained for Home Consumption.	Exports of South Australian Produce.	Imports and Exports united.
		£ s. d.	£ s. d.	£ s. d.
1881	8 31	16 1 3	13 2 5	29 3 8
1882	8·87	19 8 4	14 13 9	34 2 1
1883	8·64	16 14 5	11 17 4	28 11 9
1884	8·42	14 11 2	17 8 10	32 0 0
1885	7·93	13 15 11	14 4 2	28 0 1
1886	6·51	10 9 11	9 5 11	19 15 10
1887	6·48	10 4 0	10 19 5	21 3 5
1888	6·82	10 3 0	15 5 9	25 8 9
1889	6·69	10 10 4	11 19 10	22 10 2
1890	7·17	12 6 11	14 3 2	26 10 1
1891	7·31	13 0 11	14 16 0	27 16 11
1692	6·51	8 12 8	9 18 9	18 11 5

Before entering into the subject of the death rate which obtains in the colony, it is important to show what legislation exists for the conservation of the public health. It is certain that in a new and sparsely settled country a rigid adherence to sanitary laws can neither be expected nor enforced, except within the limits of centres of population, where the evils which are the primary causes of some diseases are more easily traced to their sources, and where their effects are sooner manifested than they can be in thinly inhabited places. In the chapter on climate it has been shown that, as far as meteorological conditions have to do with the general health of the community, South Australia is most favorably circumstanced. The dryness of the atmosphere, and the really valuable effects of the hot winds, do much to prevent the generation and propagation of malarious disorders. The absence of that squalid poverty which causes such ravages amongst the inhabitants of large European cities has a special influence on the vital conditions of the masses. The overcrowding in dwellings, which is so painful a feature in the slums of large British towns, prevails in South Australia to a slight extent only, and then not in aggravated forms. In the city of Adelaide, which is the most largely populated municipality in the colony, the average number of persons dwelling in one house is 5·21, and in Kensington and Norwood, the next largest municipality—as far, at least, as population goes—is 4·89. It is greater at times in some of the seaside towns, because during the hot months there is a large influx of visitors which is always varying. This fact may account in some degree for the disproportionate death rate that is occasionally apparent in some of those places, which are of great sanitary value to the inhabitants of Adelaide and its suburbs.

In the early days of the colony there were no special sanitary laws. Those which were at first passed were left entirely in the hands of local bodies, which worked under the Municipal, District Councils, and Police Acts. Those Acts armed the authorities with certain powers for the suppression of common nuisances only. As the population increased it was found necessary to establish more efficient means for the conservation of the public health and for the prevention of disease. In 1873 the Public Health Act was passed. It established a Central Board of Health, with a secretary and a staff of sanitary inspectors. Under that Act the council of every corporation was constituted a local board of health, and power was given to the Governor to proclaim sanitary districts, and to appoint local boards of health within them. Those local boards had authority to levy rates for sanitary purposes. If they failed to make such rates as were required the Central Board was authorised to declare the rates itself. The Central Board had jurisdiction for sanitary purposes over all those parts of the colony which were not included in

towns or in declared sanitary districts. Extensive powers were conferred upon it for mitigating the effects and preventing the spread of endemic, epidemic, or contagious diseases; for the cleansing and disinfecting of dwelling-houses; for regulating the construction of cesspits, slaughter-houses, pigsties, cowyards, and stables; and generally for preventing the continuance of any condition or thing deleterious to the public health. In addition to these the Central Board had full authority to compel local boards to carry into effect all the provisions of the Act.

The board established a system of inspection under which it soon became acquainted with the sanitary conditions of the different districts within a radius of fifty miles from Adelaide where any offensive trades were carried on. The ventilation of school-houses and the latrine accommodation provided for the scholars received special attention, as well as the condition of slaughter-houses, &c.

The state of affairs which was disclosed at the beginning of the board's operations was most unsatisfactory. Stringent measures were therefore adopted to cause all places which were in an improper sanitary state to be thoroughly cleansed, and where necessary to be paved and drained. Between two and three years elapsed before the manifold evils which were apparent could be successfully grappled with. As soon as more complete sanitary arrangements had been organised, and the nuisances which had existed were brought under reasonable control, a fresh Act was passed (No. 56 of 1876), which conferred upon the Central Board practically unlimited power for enforcing the abatement of nuisances. It was now enabled to declare houses unfit for human habitation, to destroy infectious bedding, to inspect lodging-houses, and to make regulations respecting them. The police were required to aid the boards of health, and provisions were included in the Act to facilitate the serving of notices, orders, and summonses, and the institution of proceedings in the Magistrates' Courts wherever necessary. In 1887 the Parliament passed a new District Councils Act, which divided all the colony to the south of Hawker into districts, which were constituted local boards of health possessing all the powers formerly exercised by them under the old system, except that of levying special sanitary rates, which was repealed, although they were authorised to expend money out of their general rates for sanitary purposes. This restriction does not apply to corporate towns, which can levy sanitary rates as heretofore.

Under the new statute the duties of the Central Board are almost entirely confined to the supervision of the local boards, of which there are 173. One inspector is kept continually travelling over the colony, visiting the different districts and reporting to the board full particulars relating to their sanitary condition, and upon the systems adopted by the

respective boards for carrying out the provisions of the Health Acts. Should it be proved to the satisfaction of the Central Board that any council has made default in doing its duty as a local board of health the Central Board may authorise any police officer to carry out such duties, and may recover from the defaulting board all charges and expenses in connection therewith. Other Acts are in force which tend towards the conservation of the public health, and to the prevention of the spread of disease. The Vaccination Act requires that every child born in the colony must be vaccinated within six months from the date of birth. The Lodging-house Acts provide for the registration and licensing of common lodging-houses, whereby their sanitary condition may be maintained and measures adopted for the prevention of the spread of infectious diseases. The Manufacturing Acts provide for the setting apart of certain districts for manufacturing purposes, under specified conditions. The Sale of Food and Drugs Act regulates the sale of drugs, and deals with adulteration of food. The Quarantine Act provides for the placing in quarantine of sea-going vessels arriving from places which have been declared by proclamation to be infected with cholera, smallpox, or other dangerous disorders. On arrival at a South Australian port the health officer inspects the passengers and crew. If that officer finds everything in order he gives a clean bill of health, but should there be evidence of the existence of any infectious disease the vessel is sent into quarantine. The Central Board of Health directs all subsequent proceedings. The quarantine station is at Torrens Island, on the arm of the sea known as the Port River. The passengers for this colony are removed from the ships to this station, and are detained until all risk of introducing disease into the colony is at an end.

The following figures indicate the death rate per 1,000 of the mean population for the ten years ending in 1892:—

1883	15·09
1884	15·78
1885	12·92
1886	13·95
1887	12·92
1888	12.36
1889	11·36
1890	12·59
1891	13·30
1892	11·41

The annual average proportion of deaths per 1,000 is thus 13·16, or less than 1¼ per cent. The subjoined table shows the actual mortality in

South Australia in each month for ten years ending in 1892 :—

Month.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1800.	1891.	1892.	Totals.
January	436	493	317	555	452	364	428	384	291	400	4,120
February	345	429	314	388	324	282	324	243	296	352	3,297
March	384	493	369	425	386	301	311	313	287	377	3,646
April	416	506	306	378	399	304	318	326	302	348	3,603
May	380	429	334	374	317	374	305	444	385	310	3,652
June	314	347	350	312	312	290	226	344	412	295	3,202
July	304	359	336	311	276	313	255	342	321	251	3,068
August	329	385	274	245	266	339	248	320	321	302	3,029
September	285	313	257	258	253	264	247	287	326	257	2,747
October	311	301	279	255	246	274	237	303	324	228	2,758
November	477	323	382	309	330	316	283	292	485	295	3,492
December	454	411	469	424	383	338	319	325	461	296	3,880
	4,435	4,789	3,987	4,234	3,944	3,759	3,501	3,923	4,211	3,711	40,494

The mean mortality in each month of the decade 1881 to 1890, arranged in order of fatality from the greatest to the least, follows here. The mean daily temperature, the maximum and minimum of the thermometer, its mean diurnal range, and the number of days in which the temperature exceeded 90° during the same period* is also shown :—

Month.	Number of Deaths.	Mean Temperature.	Maximum.	Minimum.	Mean Daily Range.	No. of Days when the Temperature Exceeded 90 degrees.
		°	°	°	°	
January	4,282	74·4	112·4	45·1	23·9	11
December	3,914	70·9	107·5	46·9	23·3	9
March	3,844	69·8	102·0	45·8	21·9	6
April	3,735	63·9	94·5	43·2	18·5	1
May	3,729	57·8	84·0	37·5	14·0	0
February	3,447	72·5	107·6	47·5	23·4	9
November	3,388	67·0	105·8	43·9	22·4	5
June	3,171	53·2	72·2	35·2	12·7	0
July	3,118	51·0	69·4	34·2	13·7	0
August	2,964	53·5	81·1	33·7	14·8	0
October	2,726	61·2	94·5	39·5	19·8	1
September	2,659	57·2	90·7	38·5	17·1	0

* This period corresponds with that of the tables included in Chapter V. on climate.

The average death rate appears to be 3,415 per month. In December, January, February, March, April, and May this number appears to be exceeded. In all the other months the average is not reached. The lowest points appear in September and October, which are the two most delightful months in the whole year.

The general causes of deaths in the colony for ten years ending in 1892 are given by the Registrar-General of Births, Deaths, and Marriages, according to the latest returns as under :—

All Causes.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.	1892.
Specific, Febrile, or Zymotic Diseases	901	966	720	693	664	550	507	684	709	513
Parasitic Diseases	24	32	15	30	24	22	18	10	19	17
Dietetic	75	60	37	57	54	49	52	44	41	25
Constitutional	524	602	576	603	616	607	582	601	680	627
Developmental	331	399	353	407	430	373	360	382	480	391
Local	1,972	2,035	1,707	1,813	1,625	1,607	1,452	1,713	1,769	1,625
Violence	202	239	212	272	229	234	208	238	207	197
Ill Defined or Not Specified Causes.	406	456	367	359	302	257	232	251	306	316
Totals	4,435	4,789	3,987	4,234	3,944	3,759	3,501	3,923	4,211	3,711

Dr. Borthwick (Health Officer of Kensington and Norwood, &c.), in an essay on the public health in South Australia,* points out that the climatic conditions of the colony are unfavorable to the occurrence of malarial fevers, and that they are absolutely unknown. Typhus fever is another disease, which, according to the same authority, "has absolutely no existence in the colony; and the reason is apparent, for, although sanitary conditions are very far from being perfect, yet there is no over-crowding or destitution, and much time is spent out of doors. Relapsing fever is also unknown, and Asiatic cholera has never found a footing in the colony; in fact it has never directly threatened it, but it has been carried by ship to some of the other colonies which are nearer the usually infected ports. The application of quarantine has, however, been sufficient to prevent its spread. Two deaths from smallpox are to be found in the Registrar-General's reports, one in the year 1859, and the

* Demography of South Australia, by T. Borthwick, M.D., Edin. Lond., 1891.

other in 1887. There is no record of the first-mentioned case, but, from inquiries made amongst the older practitioners of the colony (amongst them the present President of the Central Board of Health, H. Whittell, Esq., M.D.), it appears to be extremely doubtful whether the disease was actually smallpox, so that this death may safely be ignored altogether."

"The second case was really a case of smallpox. The patient had been removed from an infected ship and died at the quarantine station, and was buried at sea. This disease is not domiciled in South Australia."

From the foregoing South Australia may be regarded as one of the most healthy countries in the world. Dr. Borthwick shows that there has been a progressive decrease in the death rate of the colony; and he gives a table "which shows the death rate of age groups, stated as per 1,000 living at indicated periods for the years 1880 to 1889, and also a comparison between the colony and England and Wales. It shows that the mortality of the age groups between 5 and 45 is below that of all ages. Hence it follows that a community like that of the colony, which has a large proportion of the colonists between these ages, ought to have a lower death rate than England and Wales. It will be seen that at no age group does the mortality of the colony exceed that of England and Wales. It further shows that the decrease which has occurred in recent years in the death rate of all ages is due to a marked decrease in that of the group 0-5, and a slight decrease in the others up to the last two."

Year.	Population.	All Ages.	0-5	5-10	10-15	15-20	20-25	25-35	35-45	45-55	55-65	65-75	75-
1880	267,573	14·7	49·2	3·6	2·6	4·2	5·6	6·4	10.5	13·7	22.5	48·9	103·4
1881	286,324	14·4	45·3	3·4	2·4	3·8	4·4	7.1	10·1	15·4	22·8	49·4	106·6
1882	293,509	15·4	49·7	2·7	2·5	4·7	5·3	7·8	9·8	14·4	26·3	47·2	115·6
1883	293,937	15·0	50·9	3·4	2·4	3·3	5·7	6·8	9·9	15·2	24·9	58.6	99·6
1884	303,426	15·7	51·5	4·6	2·8	4·3	5·9	7·9	9·5	13·9	27·4	58·8	131·8
1885	308,648	12·9	39·6	3·4	1·8	4·0	4·5	6·4	8·1	12·9	23·6	52·2	136·2
1886	305,561	13·8	41·0	3.4	1·7	3·5	4·6	7·9	9·9	13·3	26·9	59·7	158·9
1887	308,836	12·7	35·1	3·0	1·7	4·1	4·9	7·0	9·4	12·7	25·3	55·8	177·5
1888	310,886	12·0	30·0	4·3	1·9	3·6	4·2	6.8	8·5	13·8	25·7	60·7	168·3
1889	315,402	11·1	28·9	2·9	1·8	3·2	3.8	5·6	6·9	12·3	24·5	60·3	160·2
1880 } 1889 }	Colony.	13·8	42·1	3·4	2·1	3·8	4·8	6·9	9·2	13·7	24·9	55·1	135·8
1880 } 1885 }	Colony.	14·7	47·4	3·5	2·3	4·0	5·1	7·2	9·4	14·3	25·0	53·2	117·9
1880 } 1885 }	England and Wales.	19·3	55·0	5·7	3·2	4·6	5·9	8·0	11·8	17·3	30·7	64·1	209·1

The estimated population given above differs slightly from the corrected figures published by the Registrar-General, but the difference does not materially affect the results as shown by Dr. Borthwick.

In South Australia the number of males has always exceeded that of the females, and the subjoined table (quoted from Dr. Borthwick) shows the proportion existing at the various census periods. It also shows the proportion existing in England and Wales. It thus appears that instead of the males being in excess females preponderate there.

South Australia.		England and Wales.	
Year.	Males to 100 Females.	Year.	Males to 100 Females.
1844	121		
1846	130	1841	95·8
1851	124	1851	
1855	103	1851	95·5
1861	105	1861	
1866	109	1861	94·9
1871	105	1871	
1876	107	1871	94·8
1881	114	1881	
1891	108		

In relation to the mortality of infants in South Australia the Registrar-General (report 1892) makes the following remarks:—

"The deaths of infants under 1 year of age numbered 1,022, against 976 in 1891, and were in the proportion of 9·69 to 100 births registered, which compared favorably with the corresponding rates of the previous seven years, and also with the rates obtaining in the other Australasian colonies and England. From 1885 to 1892 the proportions in South Australia were as follows:—1885, 11·34; 1886, 12·61; 1887, 11·12; 1888, 9·59; 1889, 9·42; 1890, 9·65; 1891, 9·09; 1892, 9·69. The latest returns received show that the proportions in the other colonies were as follows:—In 1892—Queensland, 10·65; New South Wales, 10·45; Western Australia, 14·07; Victoria, 10·64; Tasmania, 9·99; New Zealand, 8·92. On the whole, the colonies stand well in regard to infantile mortality, since, according to the returns of the Registrar-General of England, the two lowest proportions known in England since

the introduction of registration were 13·00 in 1881, and 13·50 in 1879; while the proportion has in some years been over 15·00 or even over 16·00. For the quinquennium ended with 1891 the mean proportion in England was 14·50.

"For comparison the birth rates of the capital cities and suburbs of the colonies and of some other capitals are here given. The figures for the European cities have been taken from the returns of the Registrar-General of England, while those for the colonial capitals have, for the most part, been extracted from special returns which were supplied by the statistical authorities of the different colonies:—

1892.		1892.	
Perth	44·52	Vienna	31·90
Brisbane	37·57	Greater London	30·70
Melbourne	36·13	Berlin	28·80
Sydney	34·70	Dublin	27·80
Adelaide	32·91	Edinburgh	27·10
Hobart	31·46	Brussels	26·80
Wellington	28·66	Paris	25·00

"The deaths registered in Adelaide and suburbs in 1892 numbered 1,900 (999 males and 901 females), being less by 326 than those recorded in the previous year. The death rate per 1,000 of the mean population was 14·11 against 16·96 in 1891. It was higher by 2·70 than that of the whole colony, but lower by 6·66 than the death rate of the city of Adelaide taken by itself—that is, the city death rate including all deaths in public institutions. For the purpose of comparison, the death rates per 1,000 of the mean population of the capital cities and suburbs of the colonies and of some other capitals are here given:—

1892.		1892.	
Perth	27·22	Dublin	29·30
Hobart	21·85	Vienna	24·30
Melbourne	15·98	Paris	22·40
Brisbane	14·19	Brussels	20·80
Adelaide	14·11	Berlin	19·60
Sydney	13.59	Edinburgh	19·40
Wellington	12·39	Greater London	19·30"

The table which follows shows the readings of the meteorological instruments at the Adelaide Observatory and the registered mortality within the municipal boundaries of the city of Adelaide in each month of the year 1892. It is taken from the report of the Registrar-General of Births, Deaths, and Marriages for that year, and "is intended to afford the means of comparing the weather and its changes with the general mortality, the mortality amongst young children and old people, and the

mortality from certain diseases, the malignancy of which depends, it is believed, very much on the state of the weather."

Month.	Thermometer—Fahr. (in shade.)			Barometer.			Rain.		Deaths from all Causes.										
									Ages.						Including Deaths from—				
	Maximum.	Minimum.	Mean.	Maximum.	Minimum.	Mean.	Total Fall.	No. of Days Rain Fell.	All Ages.	Under 1 Year.	1–5.	5–60.	60–80.	80 and Upwards.	Diphtheria.	Enteric Fever.	Diarrhœa and Dysentery.	All Tubercular Diseases.	Diseases of Respiratory System.
	°	°	°	in	in.	in.	in.												
January	110·8	50·5	70·2	30·098	29·387	29·850	1·617	5	61	19	1	26	11	4	—	2	5	6	3
February	107·6	51·5	73·6	30·133	29·571	29·888	0·226	5	83	23	7	33	18	2	—	3	6	13	5
March	104·5	47·3	71·2	30·104	29·559	29·850	0·760	3	97	30	5	46	12	4	—	—	8	19	10
April	89·3	43·5	60·5	30·334	20·766	30·052	1·608	15	72	18	3	33	14	4	1	6	7	8	2
May	78·1	51·7	56·4	30·309	29·561	30·000	2·450	13	63	12	3	28	13	7	3	5	—	4	2
June	66·6	39·9	52·7	30·428	29·508	30·060	2·303	16	77	12	7	34	16	8	—	4	—	10	7
July	63·6	36·5	50·6	30·362	29·189	30·038	2·614	13	59	12	4	27	12		1	—	1	4	7
August	67·5	37·6	54·1	30·324	29·499	29·880	2·625	20	62	8	5	32	14	3	1	1	—	11	12
September	74·6	42·3	56·9	30·197	29·084	29·831	2·362	12	59	7	5	35	11	1	1	—	—	12	5
October	81·6	41·5	61·5	30·104	29·531	29·826	3·110	19	47	8	4	22	11	2	1	1	1	7	2
November	97·6	44·6	69·0	30·063	29·420	29·813	0·679	8	65	17	1	35	12	—	1	—	8	13	4
December	97·5	49·7	68·2	30·067	29·315	29·806	1·171	8	58	24	—	29	4	1	—	1	2	10	4
Totals	...	...	...	...	...	...	21·525	137	803	190	45	380	148	40	9	23	38	117	63

CHAPTER XVI.

South Australia an Agricultural Colony—First Attempts at Farming—First Export of Breadstuffs in 1845—Dearness of Cereal Produce up to that Time—Progress of Agriculture and Export of Wheat from 1855 to 1890—Area of Land Under Cultivation—Total Value of Breadstuffs Exported—Yield of Wheat per Acre—Table Showing Areas Under Crops from 1877 to 1891—Wheat Crops Dependent on Rainfall—Quantities of Crops per Acre from 1877 to 1891—Gross Produce of the Colony for Same Period—Weight of Wheat, &c., per Bushel—Average Price of Wheat from 1881 to 1890—Course of Export Trade—Culture of the Vine—Its Introduction—Introduction of the Olive—Wine-making—The Early Vineyards—Extension of Wine Industry—Area Under Vines—The Most Important Vineyards—Export of Wine—Its Purity—Imports and Exports of Wines—South Australian Wine Free from Adulteration—Superior to Imported Wine—Its Use in Public Institutions—Export of South Australian Wines to Different Countries—The Character of South Australian Wines—Prizes Taken by them at Various Exhibitions—The Launceston Exhibition—Its Influence on the South Australian Wine Trade—Appointment of a Viticultural Expert—Vinegrower's Manual—Distribution of Vine Cuttings—Establishment of Vine Nursery in Botanic Garden—Fruit-growing in South Australia—Vegetable Production and Trade—Export of Fruit—Preserved Fruits—Exports to Great Britain, &c.,—Dried Fruits—Legislation for Securing Vines, &c., Against Introduced Diseases—The Fig—Olive Culture—A Remunerative Pursuit—Quality and Value of Olive Oil—Wattle-growing—Eucalyptus Oil—Almond Cultivation—Sericulture—Flax and Hemp—Hops—Tobacco—Castor Oil Plant—Mustard—Gram Vetches, &c.—The Caper—Opium—Liquorice—Perfumes—Agricultural Society—Agricultural College—Agricultural Bureau—Woods and Forest Department—Distribution of Trees—The American Ash—Its Value for Cabinet Work, &c.—The Pinus Insignis—The Date Palm—Its Success in the Far North.

THE plan upon which South Australia was founded, and the system under which the land was sub-divided and sold, indicated the main direction which the development of the colony would take. It was projected as an agricultural settlement, for the proceeds of the land sales were expended on the introduction of labor, to enable the land purchasers to cultivate the soil. The early settlers knew nothing about the capabilities of the country, and were also ignorant of the nature of the climate. The magnificent open forest land upon which the site of Adelaide was fixed and the vegetation which covered the surrounding country gave abundant evidence of the fertility of the soil, though how far it might prove suitable for the growth of European grain, fruits, and

vegetables had yet to be ascertained. A very short experience determined that question, and it was found that many European plants and seeds grew with a luxuriance such as was seldom witnessed in the countries from which they were introduced. The systematic cultivation of the land for cereal crops was not undertaken for a few years after the founding of the colony. The surface of the country in many places was baked so hard, from ages of exposure to a semi-tropical sun, that it was considered by many to be altogether unworkable, and at first nothing worth speaking of was attempted to put its capabilities to the test. Considerable delay took place in the early days of the settlement in placing purchasers of land who were on the spot in possession of the holdings to which they were entitled, and Colonel Gawler experienced much difficulty in compelling many of them to remove from Adelaide to their own properties. The progress of agriculture was therefore slow, as may be seen from the figures recorded in the "Statistical Register of South Australia" (1892), which gives the agricultural statistics of the colony from the date of its foundation. In 1837 only eight acres of ground were cultivated. In the following year the area had increased to eighty-six acres, of which only twenty were cropped with wheat. In 1839 443 acres were in tillage, of which 120 were prepared for wheat-growing. A considerable increase took place in 1840, in which year 2,503 acres were broken up, 1,059 being sown with wheat. During the five years ending in 1840 299,072 acres of land had been sold, so that a little less than an acre and a quarter to 100 acres sold was under the plough or spade.

After the last-mentioned year the progress of agricultural pursuits was more rapid. In 1845 the land under crop was 26,218 acres, of which 18,838 were sown out with wheat. What the other crops were is not mentioned in the return quoted. The area of land alienated in the five years amounted to 81,299 acres, which brought up the total to 380,271 acres, of which 111,378 acres were cultivated. In 1850 the acreage farmed was more than double what it had been at the end of 1845. In that year 64,728 acres were ploughed, sown, and reaped; 41,807 acres had wheat crops, 13,302 acres were cut for hay, and 9,616 acres bore other crops, which are not specified. In that year South Australia commenced exporting breadstuffs, having sent to other colonies merchandise of that kind to the value of £38,312. For some time prior to this most of the breadstuffs consumed in the colony had been imported, the principal portion coming from Tasmania. This kind of food was always dear, and it is recorded that at one time, flour rose to £100 per ton. Ever since 1850 South Australia has been essentially an agricultural colony, and for a long time, besides supplying

large quantities of wheat and flour to the eastern colonies, has sent away extensive shipments to South Africa, Mauritius, Java, and other places. At the present time the principal market for the surplus of wheat and flour is in London, where, owing to their excellent quality, they command the highest market rates. A sample of wheat exhibited at the Great Exhibition of 1851 weighed over 69¼lbs. to the bushel. South Australian wheat bears the character of being the finest in the world.

The discovery of the goldfields in 1851 affected the official operations of the province to such an extent that no statistics of the land under cultivation were collected from that year until 1853. In 1854 there were 129,692 acres in crop, of which 89,945 were wheat, 23,402 hay, and 16,345 other crops. Of 1855 there is no record. The Customs returns, however, show that even in those years of uncertainty and industrial stagnation the export of breadstuffs continued to take place, increasing year after year in quantity and value until 1855, when there was a sudden and remarkable falling off.

The following table shows the progress of settlement and cultivation for ten years from 1879-80 to 1892-3:—

Year.	Land Alienated.	Extent of Land held by Freeholders.	Land Enclosed.	Land under Cultivation.	Land Enclosed but not Cultivated.
	Acres.	Acres.	Acres.	Acres.	Acres.
1879-80	8,477,820	5,702,387	35,839,818	2,271,058	33,568,760
1880-1	8,942,415	4,538,140	33,924,598	2,574,489	31,350,109
1881-2	9,869,361	4,894,428	36,318,385	2,613,903	33,704,482
1882-3	9,903,167	5,037,574	39,829,398	2,623,195	37,206,203
1883-4	10,153,690	5,308,894	51,774,450	2,754,560	49,019,890
1884-5	10,335,572	5,893,632	53,444,411	2,785,490	50,658,921
1889-90	9,094,918	5,662,741	59,972,020	2,864,877	57,107,143
1890-1	8,532,823	5,562,542	61,365,069	2,649,098	58,715,971
1891-2	8,593,894	5,770,040	64,680,362	2,533,291	62,157,071
1892-3	8,637,947	5,732,615	64,174,971	2,625,741	61,549,230

In South Australia proper, in the year 1892-3, 8,637,947 acres had been alienated by the Crown, and of these 2,625,741 acres were cultivated. The mean population for that year was 331,721, so that the proportion of land owned by individuals averaged at that date 26 acres per head, and the land cultivated 7·915 acres per head.

The total value of the breadstuffs exported from the colony down to the end of 1890 amounted to £48,397,672 for the forty-four years since the exports of breadstuffs first commenced, giving an annual average of £1,099,947. The great competition which wheatgrowers in this province have to encounter from the exports from California and India

of late years has kept the price of wheat very low. For all that the South Australian agriculturist is still able to grow wheat and to dispose of it at a profit. The yield of wheat per acre is not large. In the early days, when farmers dealt with virgin soil, the returns were excellent. * "For many years in the neighborhood of Adelaide harvests of from twenty to thirty bushels, and sometimes more, per acre were gathered. Such land is too valuable now for the culture of cereals, and there are very few fields of wheat to be met with at present near Adelaide." Whatever wheat is put into the soil in the neighborhood of the city is cut for hay. In fact, the whole of the hay crops raised in the colony are from wheat sown for the purpose. The culture of the soil rapidly exterminated the native grasses, which provided food for cattle, and the wheat plant was the best resource to fall back upon to provide feed for farming stock and general consumption. For this purpose wheaten hay has no rival. A considerable quantity is annually exported. The following table shows the extent of land under cultivation and the description of the principal crops from 1878-9 to 1892-3 :—

Crop.	Acres under Cultivation.				
	1879-80.	1880-1.	1881-2.	1882-3.	1883-4.
For Grain—					
Wheat	1,458,096	1,733,542	1,768,781	1,998,746	1,846,151
Barley	15,107	13,074	11,953	12,186	13,475
Oats	4,117	4,355	3,023	3,457	5,491
Peas	3,963	4,406	4,616	3,688	3,590
For Green Forage—					
Wheat, Barley, Oats, &c.	1,271	2,709	1,915	1,618	2,086
Lucerne	8,602	9,057	10,538	7,710	8,483
Sown Grasses	24,123	23,997	16,438	12,419	22,603
Flax	208	76	154	113	107
Other Crops	20,403	28,315	1,758	3,408	9,942
Hay	265,463	272,567	333,467	138,843	366,934
Potatoes	7,320	5,587	6,136	5,288	6,063
Orchard	3,566	4,188	4,419	5,169	6,546
Garden	5,583	5,024	5,445	4,998	5,172
Vineyard	4,117	4,337	4,202	4,312	4,280
Fallow Land	449,119	463,255	441,058	421,240	453,637
Total	2,271,058	2,574,489	2,613,903	2,623,195	2,754,560

* South Australia: J. P. Stow. Adelaide, 1883.

Extent of Land under Cultivation, &c.—continued.

Crop.	Acres under Cultivation.				
	1884-5.	1889-90.	1890-1.	1891-2.	1892-3.
For Grain—					
Wheat	1,942,453	1,842,961	1,673,573	1,552,423	1,520,580
Barley	15,697	19,679	14,472	11,461	13,285
Oats	7,264	10,297	12,475	12,637	15,745
Peas	4,601	4,267	4,358	4,290	4,705
For Green Forage—					
Wheat, Barley, Oats, &c.	1,430	1,506	2,634	845	1,333
Lucerne	8,649	6,663	4,715	5,571	6,456
Sown Grasses	23,217	28,331	21,431	17,519	20,210
Flax	35	40	—	—	—
Other Crops	2,156	3,123	4,615	2,663	4,230
Hay	308,429	329,643	345,150	304,171	434,116
Potatoes	5,666	6,383	6,626	6,892	6,014
Orchard	5,825	7,437	8,736	8,928	9,918
Garden	4,942	5,763	6,626	5,494	5,853
Vineyards	4,590	7,352	9,535	12,314	15,418
Fallow Land	450,536	591,432	534,152	588,083	567,878
Total	2,785,490	2,864,877	2,649,098	2,533,291	2,625,741

Wheat, which is the principal crop on which farmers rely, depends to a great extent on the rainfall in each year. Where the rains are abundant or up to the average (21·204in.) the crops are mostly good. Insufficient rains, or rains which fall only at unsuitable times, affect the returns adversely. When hot winds set in early they inflict considerable injury on the young wheat plants, and also upon every kind of vegetation. Strong heat immediately following upon wet weather, when the stalks of the wheat are tender, frequently produces red rust, which shrivels the grain and stunts the growth of the plants. Early sowing is considered to be the best safeguard against that visitation, because the young plants are likely to have gained strength sufficient, in a great measure, to resist its effects where it does not set in very early in the season.

Oats do not thrive well except in certain places, "where the climate is cooler and moister than over the average of South Australian country. Barley yields good crops over a far greater extent of country." Some is grown on Kangaroo Island, but the produce is not large, and brewers,

who are the principal buyers, generally prefer imported malt for their own trade.*

The table below gives the average yield per acre of the crops mentioned therein for a series of years :—

Year.	Wheat.		Barley.		Oats.		Peas.		Hay.	Potatoes.
	Bhs.	lbs.	Bhs.	lbs.	Bhs.	lbs.	Bhs.	lbs.	Cwt.	Cwt.
1877-8	7	46	11	49	11	38	12	5	23	50
1878-9	7	9	11	41	12	0	11	23	19	53
1879-80....................	9	47	13	19	15	1	14	46	22	76
1880-1	4	58	11	31	11	20	13	23	19	58
1881-2	4	34	11	24	10	26	12	29	14	58
1882-3	4	13	11	2	11	5	11	36	15	61
1883-4	7	56	14	0	14	26	14	43	21	84
1884-5	7	32	13	23	12	8	14	5	19	82
1889-90....................	7	55	12	27	12	30	13	33	24	75
1890-1	5	37	12	7	9	13	14	42	18	73
1891-2	4	9	9	18	6	16	16	0	13	81
1892-3	6	5	13	10	10	23	14	52	18	6,

These figures are averages only. Many parts of the colony produce crops which in Great Britain would be regarded as good, even in favorable seasons. Much of the apparently low yield is attributable in South Australia to the growing of wheat in places where under ordinarily favorable circumstances large crops cannot be expected, to slovenly and improvident farming, to over-cropping the soil, to insufficient means in the hands of the cultivator, and to the high price of labor. South Australian farmers could not raise wheat at all at a profit without the reaping machine, which does in one day what could not without it be done in ten days. More recent improvements in farming implements and the introduction of reapers and binders have reduced the cost of harvesting considerably, and there is no reason to believe that the cultivation of wheat as a staple article of export is likely to be abandoned. Those who hold land will naturally cultivate those crops which furnish the best

South Australia: J. P. Stow, 1883.

returns at the smallest outlay. Hitherto wheat has been considered to offer the best inducement in this direction. The progress of the colony, however, shows that other products will pay infinitely better than wheat, even though cultivated on a small scale, and these are gradually coming into favor. This statement is illustrated by the following table, which is a decennial return of the gross produce of the crops mentioned therein: —

Year.	Wheat.	Barley.	Oats.	Peas.	Hay.	Potatoes.	Wine.	Grapes Sold.
	Bushels.	Bushels.	Bushels.	Bushels.	Tons.	Tons.	Gallons.	Cwts.
1879-80	14,260,064	202,156	61,818	58,547	206,141	27,832	450,408	34,240
1880-1	8,606,510	151,886	50,070	58,063	201,371	16,170	540,055	30,782
1881-2	8,087,032	137,105	32,210	57,627	240,827	28,154	313,060	29,061
1882-3	7,356,117	134,401	38,472	42,668	253,379	16,133	347,440	36,260
1883-4	14,649,230	188,806	80,407	52,816	388,719	25,557	358,606	38,112
1884-5	14,621,755	211,207	88,630	64,826	285,839	23,102	473,535	42,923
1889-90	14,577,358	246,841	131,440	57,866	305,020	23,853	510,674	80,459
1890-1	9,399,386	175,583	116,220	64,068	310,125	23,093	702,770	112,614
1891-2	6,436,488	207,183	86,876	68,055	193,317	27,824	801,835	91,794
1892-3	9,240,108	175,408	166,486	66,022	380,277	20,057	504,038	72,798

Wheat is grown in most parts of the colony, but potatoes as a staple are produced most largely in the south-eastern portion of the colony, of which the picturesque town of Mount Gambier is the commercial centre. The excellent climate of that district and the prolific volcanic soil which extends over a large area of the country are eminently favorable to the growth of potatoes as well as to the production of butter, bacon, cheese, &c. These articles add largely to the agricultural importance of the district, which is likely to increase considerably from year to year.

The quality of the grain raised in the colony may be judged from the following table, which shows the weight per imperial bushel of prize wheat, oats, and barley, exhibited at the annual agricultural shows in Adelaide from 1881 to 1892 inclusive, the date of the latest return:—

	Wheat.				Oats.		Barley.			
	Hills.		Plains.				English.		Cape.	
	lbs.	ozs.	lbs.	ozs.	lbs.	ozs.	lbs.	ozs.	lbs.	ozs.
1881	66	6	67	11	52	10	57	9	55	0
1882	67	11	67	14	52	10	57	9	54	10
1883	68	9	69	9	50	6	58	14	56	4
1884	67	14	66	9	42	6	58	14	56	4
1885	66	5	68	11	—	†	—	†	—	†
1886	65	10	67	11	—	†	—	†	—	†
1887	66	11½	66	13	—	†	—	†	—	†
1888	67	1	67	12	52	30	—	†	—	†
1889	66	4½	68	11½	42	6	59	0	—	†

† Weight not taken. In 1890, 1891, and 1892 there was no competition.

From this it appears that, although splendid wheat is grown in the hills, the hot plains are more favorable to its growth. The average market price of wheat per imperial bushel in each month for a period of ten years is subjoined:—

Month	1883.		1884.		1885.		1886.		1887.		1888.		1889.		1890.		1891.		1892.	
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
January	5	0	4	2	3	5	4	1	4	0	3	2	4	5	3	7	3	9	4	4
February	5	3	3	10½	3	4	4	2	3	11	3	1	4	4½	3	7	3	8	4	6
March	5	6	3	10½	3	3	4	3	3	10	3	3	4	10½	3	7	3	10	4	4
April	5	6	3	11	3	3½	4	4	3	10	3	3	4	10½	3	7	4	5	4	3½
May	5	7	3	11½	3	6	4	3	4	1	3	5	4	10½	3	9	4	7	4	6
June	5	5	4	0	3	7	5	0	4	0	3	4	4	10½	3	6	4	8	4	5
July	5	1	3	9	3	7½	5	0	3	10	3	3	4	9½	3	7	4	8	4	2
August	5	1	3	7	3	9	5	2	3	10	4	0	4	9½	3	9	4	10	4	2¼
September	5	0	3	6	3	9½	5	2	3	9	4	2	4	9	3	7	4	11	4	2¾
October	4	5	3	7	3	9	5	1	3	8	4	7	4	7½	3	7	4	8	3	9¾
November	4	3	3	5½	3	9	5	1	3	5	5	2	3	6	3	7	4	6	3	5½
December	4	6	3	4	4	2	4	11	3	6	4	7	3	3½	3	9	4	6	3	5

The general course of the export trade in wheat is exemplified by the table printed underneath. It will be noted that in the years marked with an asterisk the rainfall was below the average. The decennial statement of the rainfall from 1881 to 1890 is printed in Chapter V. of this work with the monthly average for fifty-two years from 1839 to 1890.

Season.	Acres Cultivated.	Acres under Wheat.	Produce Wheat.	Average per Acre.	Average Price per Bushel.	Shipments Breadstuffs.	Total Value Shipments Breadstuffs.
			Bushels.	Bhs. lbs.	s. d.	Tons.	£
1877-8.	1,828,115	1,163,646	9,034,692	7 46	5 5	149,530	1,672,628
1878-9*	2,011,319	1,305,851	9,332,049	7 9	5 1	163,969	1,648,112
1879-80	2,271,058	1,458,096	14,260,964	9 47	4 5	271,528	2,469,720
1880-1*	2,574,289	1,733,542	8,606,510	4 58	4 9	140,521	1,336,761
1881-2*	2,613,903	1,768,781	8,087,032	4 34	5 10	141,936	1,551,106
1882-3*	2,623,195	1,746,531	7,356,117	4 13	5 0½	93,593	1,030,496
1883-4*	2,754,560	1,846,151	14,649,230	7 56	3 9	328,873	2,491,896
1884-5*	2,785,490	1,942,453	14,621,755	7 32	3 8	314,407	2,185,057
1889-90	2,864,877	1,842,961	14,577,358	7 55	3 7½	281,073	2,018,719
1890-1.	2,649,098	1,673,573	9,399,389	5 37	4 5	233,110	1,927,483
1891-2.	2,533,291	1,552,423	6,436,488	4 9	4 1¾	69,029	944,264

Of late years the culture of the vine and the industry of wine-making have taken very prominent positions amongst the producing classes of the province. At a very early period of the colony's existence it was found that the climate and soil were eminently suited to the growth of the vine, and that the fruit was of the highest quality in flavor, size, and abundance of yield. Almost all varieties of table grapes, as well as wine grapes,

thrive admirably in the hills as well as on the plains, and in most parts of the colony the vine finds a congenial habitat.

In nearly all the gardens attached to dwellings vines are grown, and the produce, which is obtained without much trouble or labor, forms an important addition to the domestic economy of the growers. In small plots of ground, such as are cultivated by working people, they require little attention beyond pruning at the proper season, and digging round the stems so as to loosen the soil for the spring rains. A very large quantity of grapes is raised in this way in the suburbs of Adelaide. Within a short distance of the capital small vineyards were formerly numerous; these, however, for the most part have disappeared, owing to the demand for land for building purposes.

The vine was first introduced into the province from Sydney, where it had been acclimatised for some years. The South Australian Company also imported some from the Cape of Good Hope. The vessel which brought the latter brought olive truncheons at the same time, and both were planted in the company's nursery at a place now known as Hackney, less than half a mile from the eastern boundary of the city of Adelaide. Here the cuttings throve admirably, and from the first vines they were rapidly distributed to various parts of the young settlement. Wherever they were planted they succeeded quite beyond expectation. Some years, however, elapsed before the quantity of grapes which was grown suggested an attempt to make wine. The first efforts in this direction were encouraging, though not altogether successful. English farmers and horticulturists had no experience in wine-making. They were ignorant of the special varieties of vine which were suitable for the purpose. They were not acquainted with the situations or soils best adapted to particular kinds, and in the art of fermenting the must and of treating the new wine in the cellar they were totally inexperienced. However, experimental wine-making went on, and at length, in many cases, a wholesome and drinkable article was produced and consumed in the colony, especially at harvest time, when wine was served out to the reapers and others instead of beer, which in country places could not be procured. The late Mr. Geo. Stevenson, who was an enthusiastic horticulturist, planted vines in his splendid garden in North Adelaide, and at a latter period on a large scale in an extensive orchard at Glen Osmond, just in the hills east of the city. Mr. F. Davis, at the Reedbeds, not very far from the seashore to the west of Adelaide, engaged largely in viticulture. He also tried wine-making and with considerable success. Dr. Kelly established a vineyard at Morphett Vale, at a distance of some fifteen miles south of the metropolis, and entered into wine-growing as a business. He also prepared and printed a

treatise on the vine in South Australia, which is still regarded as a useful and reliable work on the subject. His wines were held in considerable repute. Mr. Jacobs, of Moorooroo, also established a vineyard, and was highly successful in producing wine of excellent quality. The wines grown by the gentlemen above-named were to a large extent typical of those which are now characteristic of South Australia. The comparatively small scale on which wines were produced at that time gave proof of some of the difficulties which stood in the way of establishing a trade. It was difficult from year to year to secure uniformity of sample, nor could quantity be guaranteed when a demand for any special kind arose.

The success which attended the labors of these growers induced others to commence operations as vignerons in almost all parts of the colony. At the present time there are 15,418 acres of land under vines alone, and the area is rapidly extending. There are 4,206,880 vines in bearing and 4,545,737 not yet in bearing. The most important vineyards in the colony are those represented by Messrs. Cleland & Co., Limited; Messrs. Hardy & Sons, of Bankside and Tintara; Messrs. Penfold, of Penfield, near Adelaide; the Auldana vineyard, near Magill; the vineyard at Stonyfell, near Burnside; the Seppeltsfield vineyard and the vineyards of Smith & Son, Salter & Son, and of S. & W. Sage, near Tanunda; the Angaston vineyard; the Clarendon vineyard; and the vineyard of the Jesuit Fathers, at Sevenhills, near Clare. All of these work on an extensive scale. There are many others in existence, and according to official authority there are more than 1,000 winegrowers in South Australia who own vineyards of an acre and upwards in extent. The quantity of wine made in 1892-3 was 594,038 gallons.

A large proportion of the produce of the colony is exported, but the quantity retained for home consumption is great and always increasing. The use of colonial, in preference to imported, wine is steadily growing. The colonial wines are better than the bulk of the imported wines; they are cheaper and more wholesome, because "they are absolutely pure and unadulterated in any way whatsoever." * This writer also states that "in South Australia it has become the rule for the smaller growers to sell their grapes to the larger growers and winemakers, and they have as much as they can do to cope with the increasing quantity of grapes offered to them, and there is a good opening for increased capital to be employed in providing the required accommodation. Large additions have been made during the past year to some of the wine-making establishments, notably to those of Mr. B. Seppelt, of Seppeltsfield; Smith & Son, W. Salter & Son, and S. & W. Sage, in the Angaston

* W. B. Boake: "The Production of Wine in Australia." London, 1890.

district; Messrs. Cleland & Co., Limited, near Tanunda: Penfold & Co., near Adelaide; Thomas Hardy & Sons, Limited, at Tintara and McLaren Vale, south of Adelaide; but much more will be required to meet the demands for the next and future vintages in these localities."

The practice of selling grapes grown by small producers to the large winemakers is advantageous to all parties. The small vinegrower obtains a good price for his produce, and has none of the risks attendant upon wine-making on a small scale. As a rule the majority of the grapefarmers do not possess the appliances suitable for wine-making and blending, and they have neither the skill to manage the delicate operations which are indispensable to the making of wine of a high class nor the capital to embark in a trade which can only be successfully carried on on a large scale. In every wine-growing district the grapes develop special local peculiarities, and if manipulated on a limited scale it is impossible to ensure that uniformity of sample which is essential to a successful trade. The price that is paid for grapes affords the grower a good remuneration for his enterprise. In ordinary seasons an acre of vines should produce about two tons of grapes, and the cost of pruning them and keeping the soil around them loose and free from weeds is not great. The price of grapes is about £3 10s. to £4 5s. per ton, and this leaves the grower a respectable profit on his investment; indeed a far better one than he can ever rely on by growing wheat or hay.

The importation of wine into South Australia may be seen from the following figures taken from the "Statistical Register" for 1892:—

	1886.	1887.	1888.	1889.	1890.	1891.	1892
Quantity .. gallons	29,683	24,034	39,650	22,084	27,014	21,230	20,408
Value .... £	16,500	14,198	26,826	14,628	20,055	16,626	14,484

A considerable portion of those imports consisted of sparkling wines such as are not produced in the colony.

The exports of South Australian wine during the same periods are appended:—

	1886.	1887.	1888.	1889.	1890.	1891.	1892.
Quantity .. gallons	83,309	89,838	130,037	180,135	221,885	286,188	325,038
Value .... £	23,731	23,787	33,903	44,891	50,738	58,684	64,780

In 1892 303,795 gallons were exported in bulk and 21,243 gallons in bottle, showing an increase of 38,850 gallons over the export of the preceding year. It becomes evident from this that Australian wine is growing in favor in other countries.

Mr. Boake, in the *brochure* quoted above, observes that "the difficulties of establishing the wine industry in Australia were many; vines had to be brought from Europe, the capacities of the different localities and their various soils had to be experimented upon, and laborers, entirely inexperienced, instructed in the arts of tending and pruning, and, when the wine had been produced, a market had to be found for it among a population to whom the drinking of wine was an innovation not altogether acceptable." Much of this is true as regards South Australia. The hard business of training inexperienced men to work the vines has been overcome, partly by the enlarged experience of the principal winegrowers and partly by the introduction into the colony of trained wine experts from Europe, whose employment has been the means of bringing about a thoroughly scientific method of treating the vines and their products, so that now South Australian wines take a distinguished place amongst the best products of European wine countries. There has been a prejudice against Australian wines in the mother country, but it is now disappearing, for the British customer is now assured that when he buys Australian wine he gets it pure. As Mr. Boake remarks—"The Australian winegrower is unsophisticated in the art of adulteration. Let us be thankful that it is so. He simply puts forth a pure wine and nothing else, and if connoisseurs tell him they do not like his wine, it has too much spirit, or it is not like the French or Rhein wines, he can only beg pardon and tell you he does not 'make,' he simply 'grows' it, and without admitting that it is less agreeable, has less bouquet, or is inferior to what you have been used to drinking, he invites you to partake of the pure juice of the grape, and if it is too strong for you then take less, or add water to it before drinking, which will bring out the natural bouquet that is characteristic of Australian wines." It may be added that in the public institutions South Australian wine is given to the patients in preference to imported wine. In his last report on the "Hospitals for the Insane" Dr. Paterson, the Colonial Surgeon, writes as follows:—"Colonial wine still continues to be used, and the experience verifies the remark made in previous reports, that, while it costs less, it is superior to the imported article."

When the export of wine to England from this colony was first undertaken there were immense difficulties in the way. Vignerons in South Australia had to learn the kinds of wine which would be acceptable, and then the kinds which were best suited to withstand the

varying conditions of the voyage home. In addition to this the duty charged upon the wines of the Australian colonies was so high that it was almost prohibitory. The Customs authorities could not be brought to believe that South Australian wine was not fortified by the addition of spirit. They could not understand that the proportion of 30 per cent. of alcoholic strength was a natural strength. Some of our wines go to that, and even as high as 36 per cent. in their natural state.* The imports were consequently charged with a duty of 2s. 6d. per gallon, whilst the lighter wines of other countries not British colonies were admitted at the duty of 1s. per gallon. Such an impost as 2s. 6d. per gallon was almost fatal to the trade. The position of the Australian winegrower has been improved of late years in this respect, but the rule of the English Custom House checked for some years the growth of the South Australian wine trade with England.

The following list shows the quantity of South Australian wine exported to different countries in 1892:—

	Gallons.		Gallons.
United Kingdom	263,012	West Australia	6,703
New Zealand	30,191	Germany	1,929
New South Wales ...	6,419	Tasmania	2,326
Victoria	4,771	Port Darwin	936
Queensland	6,669	Other countries	2,082

A few exports were sent to India, China, Ceylon, Belgium, Italy, Germany, and the Cape Colonies. The consignments, however, were so small that they can be regarded only as samples, perhaps the forerunners of a future trade. The colonies of New South Wales and Victoria are both wine-producing countries, yet they stand third and fifth on the list of the customers of South Australia for her wines; and in both cases there is a heavy import duty on the produce of this colony. In New South Wales it is 5s. per gallon and in Victoria 6s.: in Tasmania it is 6s. in bulk and 8s. in bottle. These duties necessarily cripple the intercolonial wine trade greatly, and hamper what would otherwise become an important factor in South Australian commerce. It was not long since

* Parliamentary Paper No. 162 of 1874 gives a table of the results of twelve tests of the natural wines by the Customs Department, which gives an average of 29·4 per cent., the highest being 38·7 per cent., beating all records. The next was 33·9 per cent., and the lowest 22·8 per cent. The wine which gave the highest result was made as an experiment. Mr. C. Bonney (formerly Commissioner of Crown Lands), at his residence near Burnside, crushed enough grapes to fill a quarter cask with must. When fermentation had ceased he closed the cask and left it to take care of itself. It matured into a strong wine without the addition of any spirit. Doubtless the grapes had been left till very ripe. The site on which the grapes were grown was a strong soil and very warm, both of these conditions tending to generate a large quantity of sugar in the must.

stated at the annual meeting of the Australian Winegrowers' Association that the Tasmanian duty on South Australian wine was more than the actual value of the article itself in South Australia. Negotiations are now in progress between the two colonies, which it is hoped will result in an arrangement by which a freer interchange of their produce may be brought about. If such an arrangement should be entered into a considerable impetus will be given to the wine trade here.

Most of the kinds of wine produced in Europe are made here. They are of excellent quality, and are reasonable in price. Port, Sherry, Madeira, Claret, Burgundy, Constantia, Frontignac, Muscat, Chablis, Sauterne, Reisling, Champagne, as well as many varieties of sweet and dry wines, both White and Red, which are known by local names, are produced and are much in demand. Many of these wines have gained gold medals at different exhibitions in London, Paris, Calcutta, Bordeaux, New Zealand, Tasmania, Western Australia, and Philadelphia, besides other foreign and local trophies of various kinds. In Tasmania, at the exhibition held at Launceston in 1891, the awards made to the South Australian winemakers, of whom only ten exhibited, "were greater in number and value than all of those awarded to Victoria and New South Wales combined. The total awards, including the first prize for champagne, indicates the high position which our winemakers have attained to, as they have secured fifteen special first awards, nineteen first prizes, eight second prizes, no third prizes, and two exhibits highly commended. There can be no doubt that the influence of the Tasmanian Exhibition upon the consumption of South Australian wines will be great, not only in that island, but also throughout the Australian colonies, because of the great number of intercolonial visitors who were entertained in our reception room, the expenditure by the Government being amply justified by the results of an expansion of the wine industry of South Australia."*

The great interest taken by the Government in the production of wine is exemplified by the appointment of a viticultural expert to supply the public with advice and assistance in the culture of the vine. A vinegrower's manual for South Australia has recently been prepared and published under instructions from the Government of South Australia, and with the coöperation of practical vinegrowers of the province, which gives full instructions in the art of viticulture † in this colony which cannot fail to be of the greatest benefit to all who enter upon vinegrowing.

* Report by J. H. Scott on the Tasmanian Exhibition to the Vinegrowers' Association, May 25th, 1891.

† South Australian Vinegrower's Manual: George Sutherland, M.A. Adelaide, 1892.

Besides this, during the season of 1892, about 2,000,000 vine cuttings have been distributed gratis, through the Conservator of Forests, with a view of encouraging the cultivation of the vine as widely as possible. In the Botanic Gardens Mr. Holtze, the director, has established a vine nursery in which the capabilities of all the useful varieties of the vine will be experimented on and tested. It has been proposed to the Government to establish a wine depôt in London, so that purchasers there may be certain of obtaining South Australian wine in its pure state. It is intended also that the wines consigned to the depôt shall not be offered for sale unless sound and in good condition, so as to obviate as far as possible the risk of injury to the reputation of South Australian wines by the sale of inferior or immature samples.

The climate and soil of South Australia are so favorable to the growth of all kinds of fruits and vegetables that the pursuits of fruit-raising and market gardening are followed on a large scale. Around Adelaide, especially in the hills, orchards and vegetable gardens abound. The official statistics for 1892 show that 15,771 acres are at present devoted to the cultivation of orchard and kitchen garden produce, and the area is yearly increasing. It appears that there are 6,014 acres under potatoes, orchards occupy 9,918 acres, and gardens 5,853 acres. The quantity of vegetables raised is so large that, besides meeting the consumption of Adelaide and its suburbs, the gardeners supply the mining townships on Yorke Peninsula and elsewhere, around which the soil is not suitable for vegetable and fruit culture. An immense quantity of fruit and kitchen produce is forwarded to Broken Hill and Silverton for the use of the population there and for that of the silver mining districts adjacent to those towns. South Australia, in fact, commands the bulk of the trade in that direction, and is likely to continue to do so, for the soil of the district generally is not fertile. The rainfall is very uncertain and seldom abundant, and the few patches of country which can be made available are not extensive, and so far removed from the sources of demand as to render the pursuit of market gardening very precarious in such localities.

The raising of fruit has become an extensive industry which is growing more important year by year. South Australia is not only able to supply her own requirements, but a very large quantity is sent away to other colonies in fresh condition, and an immense deal is also converted into jams and preserves of various kinds, much of which is also exported. According to the Customs returns for 1892, 41,800lbs. of fresh fruit were sent from the colony. Of these New South Wales took 32,066; Victoria, 8,083; and West Australia, 1,201lbs. The export of preserved fruits in 1892 was as follows:—To Western Australia, 60,164lbs.; New

South Wales, 17,358lbs.; Port Darwin, 3,816lbs.; Queensland, 984lbs.; Great Britain, 872lbs.; Ceylon, 552lbs.; and other countries, 3,312lbs., making a total of 86,496lbs. Besides this 16,205lbs. of fruit pulp were sent away for the purpose of being converted into jams, &c. The gross export of jams and preserves amounted to 752,810lbs., distributed as follows:—New South Wales, 358,170lbs.; Western Australia, 322,660lbs.; Queensland, 29,164lbs.; Victoria, 12,178lbs.; Ceylon, 12,776lbs.; Port Darwin, 15,436lbs.; and other countries, 2,286lbs. The values of the fruits and other products of orchards and gardens exported were—Bottled fruits, £85; raisins, £2; fresh fruits, £19,051; jams, &c., £12,834; preserved fruits, £1,753; fruit pulp, £143; honey, £1,437.

Some attempts have been made to develop the fruit-growing industry by experimental shipments of fresh fruits to Great Britain. These have been attended with moderate success. It has recently been proved that grapes, when properly packed, can be landed in England in good condition at seasons when they are certain to command remunerative prices. The same fact has been established with regard to other fruits, but this trade is only in its infant stage. Oranges and lemons and other varieties of the *citrus* tribe are extensively grown in the colony, but it is still to some extent indebted to New South Wales for supplies to meet local wants and the demand which has sprung up in the silver mining districts at Broken Hill and the surrounding mining settlements.

The manufacture of dried fruits, such as raisins, currants, &c., has not yet made very great progress in the colony, and the supply for the local market is very far short of its requirements. The business, however, is gradually expanding, and will eventually rise into greater importance. The quality of the articles is excellent, and the fruit meets a ready sale at paying prices. Colonial raisins, of which 711cwts. were made in 1892, are preferred to those which are imported, and the currants are decidedly superior to any that come from Europe. They have a better appearance, and are fresher and of good flavor. They are, moreover, free from grit and other impurities which are always found to a greater or less extent in imported goods.

The process of sun-drying grapes and currants can only be carried on in situations where they mature early and can be treated in the open air without being exposed to the risk of early rains or damp weather. These conditions mostly obtain on the Adelaide plains.

With regard to the health of the vines which are extensively grown it may be said that they are not subject to many diseases in South Australia. The *Oïdium Tuckerii* is frequently met with, but the judicious use of sulphur is always a specific remedy. The damage done by the presence of this disease has never caused any serious or extensive mischief. The

colony up to the present time has been free from *phylloxera*. and its presence is so far unknown. In the neighboring colony of Victoria it was discovered a few years ago. The vineyards in which it had manifested itself were destroyed. The stocks were rooted up and burned, and the replanting of vines on the sites where the pest had existed was prohibited for a period sufficiently long to obviate the probability of its reappearance. All the colonies which were interested in viticulture joined together in bearing the cost of eradicating it. The efforts which were persistently made to get rid of this scourge have so far proved successful. Stringent laws regulate the treatment of vineyards where *phylloxera* may be discovered, and rigorous precautions are taken to prevent its renewal amongst them by the introduction into any of the colonies of plants or fruit from places where suspicion of its existence may be entertained.

Figs thrive splendidly in the colony. They are abundant in all gardens and orchards, but the business of drying them has not yet taken much hold upon fruitgrowers. An attempt has been made to introduce the Smyrna fig, which is the best kind for drying. The results hitherto have not been satisfactory. The trees grow well and bear abundance of fruit, but it does not mature. When the figs are about half grown they fall to the ground, and of course the product of the trees is *nil.* The same thing has taken place with the Smyrna fig trees which have been introduced into California. The falling off of the fruit is prevented in Smyrna by a process called "caprification." It is not yet understood in South Australia, though doubtless in course of time the difficulty will be overcome.

The culture of the olive and the manufacture of olive oil are prosecuted with the greatest success in the colony, and the quality of the oil which is produced is in every respect equal to that of the very best kinds which are made in Southern Europe. The industry, however, is carried on only on a comparatively small scale, considering the immense area within which it might be successfully developed. Some years ago Mr. W. R. Boothby, Sheriff of South Australia, who has always taken a great interest in the cultivation of the olive, whilst on a visit to Europe collected an immense quantity of valuable information on the subject, which he embodied in a small pamphlet. This work was published by the Government in 1878. It affords information as to the kinds of olive which are cultivated in France and Italy, and gives useful instructions respecting the soils on which they thrive best, and also as to the best means of propagating and preserving the trees. In the introduction he observes—"The similarity of the soil and climate between this province and Southern Europe is remarked by every traveller who has visited both places, and this conviction has induced

patrictic colonists like Mr. [now Sir Samuel] Davenport, Dr. Schomburgk [since deceased], Mr. Page, and others to endeavor to introduce into South Australia, as a supplementary industry, what in Italy and Southern France forms one of the principal sources of national wealth. The cultivation of the olive and the manufacture of its fruit into oil form staple industries in those countries, and there is no reason whatever why the industry may not attain in this land fair proportions if agriculturalists and persons of means would display the same amount of intelligence and enterprise as have characterised them with regard to many other matters affecting their interests and the interests of the country. The principal difficulty which the advocates of olive culture hitherto have had to contend with has been the supineness with which this important question has been viewed by those whose interest it should be to give attention to it. The slow growth of the tree and the necessarily long time before olives become productive undoubtedly tax the patience of men whose experience has been to sow, harvest, and sell their corn within the limits of a single year; but viewed as a supplementary industry—one which can be carried on concurrently with the usual agricultural operations of the country, and without materially interfering with them—it is a matter for surprise that it has not engaged more attention than has been given to it. It is gratifying to know, however, that the industry, small as it is, is progressing, and that annually the olive plantations of the colony are being increased and the production of oil becoming year by year larger." Unfortunately there are no special records which allow of a comparison being made between the state of olive cultivation at the time the above was written and its condition now. Some of the difficulties which barred the progress of the industry prevail at the present time as they did then, and time alone can solve them. They are want of capital and of knowledge, as well as of the plant necessary for oil-making, in addition to the uncertainty of obtaining labor at a moderate cost at the proper seasons. So far as it has gone the production of olive oil has been proved to be a paying pursuit. The yield is satisfactory, and the price of oil good. What is produced in the colony sells readily at 10s. to 12s. per gallon, and the supply of the oil is not nearly equal to the demand for it. The most considerable olive plantations are those owned by Sir Samuel Davenport, K.C.M.G., and the plantation on the park lands immediately adjoining the Adelaide Gaol. At the latter place the berries are gathered by the prisoners, and the oil is made by prison labor. All the other operations of digging round the trees and pruning them, &c., are also performed by the prisoners.

The cultivation of the wattle *(Acacia pycnantha)* for the sake of the bark, which is largely used in tanning, has spread wonderfully of late years.

Formerly the supply of wattle bark was mostly derived from the scrub on waste lands of the Crown. The settlement of the country and the reclamation of the land consequent upon the spread of agriculture seriously diminished the supply. More recently the high price which the bark has realised in England, where it has become scarce, has prompted many landowners to plant wattles and to cultivate them in a systematic manner. The tree is indigenous, and will grow almost anywhere, so that it requires but little care or attention. In the second or third year after planting the bark becomes available. After the bark is stripped off the trees die, but the land does not require replanting, for fresh trees grow up from the seed shed by the old ones. In order to encourage this industry as much as possible, and to induce farmers and others to take up the cultivation of the wattle, the Government has distributed large quantities of the seed gratuitously. About 3,000 tons of bark were exported from the colony in 1892, valued at the ports of shipment at over £11 10s. per ton. The bulk of the exports went to the United Kingdom, the quantity sent thither being 2,397 tons.

It is well known that the gum trees, or *Eucalypti*, possess considerable and valuable medicinal properties. The *Eucalyptus globulus*, or blue-gum, which grows in greater perfection in Tasmania than it does on the mainland of Australia, is much valued on account of the large quantity of eucalyptus oil which can be distilled from its leaves. A large trade is developing from its manufacture, and four distilleries are established for its production. Three of these are located on Kangaroo Island, where the *Eucalyptus eneorifolia*, a narrow-leaved gum, is abundant, and is reputed to yield the best oil of all. Official returns do not indicate the extent of the trade in eucalyptus oil or the value of the exports, but it must be considerable to find employment for the operations of four distilleries.

The growth of the almond and its fecundity are surprising, and when the right kind is planted the pecuniary results are most satisfactory. The trees thrive on almost any soil, and require little attention. The principal thing to be done is to trench the ground in which they are planted, and nature will do the rest. The Jordan and the Brandis are the best sorts to grow, and they fetch excellent prices in the market. Hardshells realise 22s. to 23s. per cwt., and soft shells 42s. to 46s. The latter when cracked and fit for immediate use in confectionery, &c., realise from 84s. to 93s. 6d. per cwt. The yield per tree depends altogether upon its age and development. The expense of collecting the produce of the trees is small, for when ripe the almonds can be beaten off the boughs with long sticks, without injury either to the fruit or the trees, and are easily collected and bagged for sale.

The late Dr. Schomburgk, Director of the Adelaide Botanic Garden, in various papers read by him some years ago before the Chamber of Manufactures, in Adelaide, pointed out the adaptability of the climate and soil of the colony to the production of many valuable articles of commerce which might be profitably exported to Europe. He strongly urged the importance of introducing sericulture into the province. He ascertained from Europe what kinds of mulberry were the best for feeding silkworms. He introduced the seeds and offered for distribution young plants of the most approved kinds, but the demand for them was very limited. The Government, at his suggestion, laid out an extensive mulberry plantation at the Orphanage at Magill, near Adelaide. Up to the present time the industry of sericulture has not made much headway. Dr. Cleland, the Resident Medical Officer at the Parkside Lunatic Asylum, has gone into the raising of silkworms to a considerable extent, and he still keeps his enterprise going. The results, however satisfactory as far as regards the production of excellent silk, have not as yet had much influence on the public mind. As to the culture of the mulberry, Dr. Schomburgk stated that it will grow everywhere, almost, in the colony. It grows at Glenelg and Brighton, close to the sea beach, in sand, and is as luxuriant in its development there as it is in the fertile soil of the hills and other parts of the colony.

Dr. Cleland has kindly supplied the following notes on silk culture in South Australia :—"The cultivation of the white mulberry tree and the rearing of silkworms has been carried on in South Australia for the past twenty or thirty years. In the year 1871 Mr. F. Wurm claimed, and obtained, the Government bonus of £500 for producing the first hundred-weight of silk cocoons in the province. Since that time he has not done much in silk culture. In 1870 a company was started to take the industry in hand, and had a plantation of white mulberry trees near Hindmarsh, a couple of miles from Adelaide. Its efforts were unsuccessful, partly owing to an insufficient supply of leaf food for the silkworms, and partly to unskilful treatment of the insects. About the same time an attempt was made to establish the industry at the Parkside Lunatic Asylum, under the supervision of Mrs. Lindsay, of Port Elliot, who had been specially instructed by Mrs. Bladen Niel, of Victoria. The silkworms unfortunately proved to be unhealthy, and the attempt was abandoned for a time.

"In 1877, when the Sydney Exhibition was held, the Japanese Commissioners presented to Sir Samuel Davenport, K.C.M.G., the 'grain' of an esteemed variety of silkworm, which was handed over to the care of Dr. Cleland, of the Parkside Lunatic Asylum, on account of the plantation of white mulberry trees which had been formed at that

institution. The silkworms have proved to be very healthy. They have been reared in a shingle house, plastered with 'wattle and dab,' and have yielded annually about a hundredweight and a half of good cocoons. The yield is limited to the above quantity because the 300 trees, of which the plantation consists, do not produce sufficient food for a greater number of silkworms than are at present maintained. The quality of the silk from the cocoons which are produced has been proved to be excellent, judging from the reports received from the Indian and Colonial Exhibition of 1886, from a firm at Calcutta, and from a firm at Bologna, in Italy.

"The great obstacle to the development of the industry is the fact that no plantations of white mulberry trees of any extent exist in the colony. Ordinary cultivators cannot be expected to plant unless they have a fair prospect of being able to sell the leaves. No capitalist has yet ventured to give the requisite guarantee—say for a definite term of years—to purchase the leaves if they became available."

The subject was discussed in a paper read by Dr. Cleland at the first congress of the Agricultural Bureau, held in Adelaide in 1890. Sir Samuel and Lady Davenport, Mrs. Lindsay (of Port Elliot), and Mr. S. V. Pizey (of Adelaide), as well as the late Dr. Schomburgk, have done much to press the advantages of silk culture upon the notice of agriculturists, but hitherto with only slight success.

Flax and hemp would thrive very well in the colony, and they have been cultivated with success in the southern parts of the colony.

The soil and climate of the south-eastern district, about Mount Gambier, are admirably adapted to the growth of beetroot for the manufacture of sugar, but nothing has been done in this direction.

Hops flourish admirably in various parts of the colony, especially at Lobethal, Encounter Bay, Mount Barker, and Mount Gambier, and the produce has hitherto found a ready sale.

Tobacco can be produced in South Australia of excellent quality. Much attention was given to its cultivation in the early days of the colony, and superior tobacco was made; but Dr. Schomburgk stated that its cultivation became entirely neglected when the price of wheat paid the farmer better than that of tobacco. He also stated that whilst South Australian tobacco could not surpass the South American or West Indian leaf in flavor, as fair a sample could be produced in the colony as on the continent of Europe. One field of tobacco at Lyndoch Valley attracted his special attention, and in measuring some of the leaves he found that their average size was 21in. long and 12in. wide. Probably the great drawback to the cultivation of the tobacco plant is the want of knowledge of a proper method of curing the leaf. This can only be

acquired when the plant is cultivated on a large scale and it becomes worth while to bring over from America or elsewhere skilled tobacco-growers, who thoroughly understand the treatment of the leaf.

The castor oil plant thrives in every locality and in every soil, rich or poor. It grows close to the coast in pure sand and becomes covered with seed. It is generally regarded as a nuisance. It will grow where scarcely any other vegetation grows, and after planting there would be little or no trouble except in gathering the seeds. They have a fair marketable value, and might be turned to good account. The manufacture of castor oil has not yet been attempted, except in an experimental way, but there is no doubt whatever that it might be made in South Australia with no more difficulty than olive oil is made now.

Mustard is grown in various parts of the colony, and the manufacture of the flour keeps one establishment going. The colonial article, being fresh and strong as well as free from adulteration, is much superior to any that is imported. Habit and prejudice, however, lead the majority to use the imported article in preference to that which is made in the colony. The color which the imported mustard shows is much brighter than that which is displayed by colonial mustard. This, however, arises from the admixture of foreign substances from which the local article is free.

In addition to the above Dr. Schomburgk strongly urged the growth of gram vetches, &c., as cattle food, but although these plants do well, and would be found most useful, they have not yet superseded or even interfered with the growth of hay, oats, and barley, which are used for fodder.

Capers thrive magnificently in the hills in South Australia, and their preservation could be made a profitable industry, but as yet they are not produced to any great extent.

Opium cultivation is one of the neglected industries in South Australia. With everything in its favor as regards climate and soil, it has as yet received no special attention.

Liquorice can be grown in the colony with little trouble and at a small cost in almost any locality and soil. Probably the expense of cultivation and the length of time that must elapse (four years) before the crop arrives at maturity have discouraged farmers from experimenting upon its production, because they look for more immediate returns for the results of each year's labor.

The manufacture of perfumes might be carried on in South Australia with profit and advantage. So far as it has been tried the results have been most satisfactory. Various difficulties, however, with regard to free distillation, as well as other impediments, have kept this valuable industry in the back ground.

The list of plants that might be raised whose seeds, fibres, and other products could be turned to valuable account in this province is almost without limit. The great variety of soil and climate which it possesses might be made use of to a far greater extent than has been the case up to the present time. A more energetic and enterprising spirit, however, seems to have set in amongst the cultivators of the land, and a very few years will probably make a considerable difference in the vegetable productions of the colony.

For many years an Agricultural and Horticultural Society has been in existence whose head-quarters are in Adelaide. There are also many local societies of a similar nature, all of which have done much in the past, as they are doing now, in promoting all kinds of agricultural enterprise. The principal society holds its annual show in Adelaide in February, and the show days are amongst the most important of the public exhibitions of the year. Such shows are always largely attended, and in the hall and grounds fruits, grain, vegetables, and stock of all kinds, besides agricultural implements and machinery, are displayed. The fruits, vegetables, and grain which are brought together on such occasions would surprise even those who are accustomed to the collections of similar productions in the mother country. At other times of the year there are exhibitions of livestock of all kinds, and the flower shows which are held at suitable seasons are such as would do credit to any country in the world.

An Agricultural College has been established at Roseworthy, about thirty-five miles north of Adelaide, where there is an experimental farm and where students are trained in the practice of scientific agriculture and the various branches of study connected therewith. An account of this institution will be found in the chapter on education.

There is a Government department called the Agricultural Bureau which has been in existence for a few years. This establishment does excellent work in the encouragement of agricultural pursuits. Its objects are to collect and disseminate information of all kinds that may be useful to those who are engaged in husbandry. It also distributes seeds, &c., as may be required, in order to bring new and valuable products within the reach of the farming classes. This kind of work was formerly performed by the late Dr. Schomburgk, Director of the Adelaide Botanic Gardens, who was an enthusiast in his work, and who deservedly earned the gratitude of the community for his unceasing efforts to promote and develop the latent resources of the colony in agriculture, horticulture, and arboriculture. There are forty-five branches of the Bureau in different parts of the colony, and they materially assist the valuable labors of the central establishment.

Amongst the most useful of the public institutions in South Australia is the Woods and Forest Department. It was established about fourteen years ago, and was then called the Forest Board. Its organisation, however, was not very successful, and its functions were transferred to an officer as head of a department under Ministerial control. The change has proved to be beneficial, and forest planting in South Australia has been attended with the greatest success.

For forest purposes the colony has been divided into four districts, the northern containing nine forests covering 121,979 acres, the central district includes eight forests containing 21,647 acres, the western district has three forests spread over 16,269 acres, and the southern district has ten forests with an area of 55,474 acres, altogether 215,369 acres. The total area under operations in 1892 was 10,185 acres.

Young trees raised in the plantations are freely distributed, 372,192 having been spread over the colony in this way in 1890-91, and in 1891-2 322,383. At the present time there are close upon a million of young trees available for distribution. The actual expenditure of the department for the fourteen years ending in June, 1892, was £104,097, and the revenue derived from the sale of trees, posts, railway sleepers, &c., amounted to £103,340. The small excess of £799 as expenditure over revenue during a term of sixteen years does not give any indication of the value of our forest reserves and their contents. Many thousands of posts for fencing purposes and sleepers for railway construction have been supplied from the forest reserves, and the supply of available timber now growing in the forests is equal, without further planting, to all the requirements which are likely to arise in the colony for many years to come.

Many varieties of timber trees are grown in the plantations which are suitable for purposes other than those of railway and fencing works. Trees suitable for the manufacture of furniture and cabinet work of different kinds are grown there in perfection. Amongst them may be mentioned the American ash *(Fraxinus Americana)*, which has succeeded beyond all expectation. Some of the trees were felled at the early age of ten years, and the timber, after drying, was made up into various articles, such as buggy poles, tables, chairs, Indian clubs, mallets for driving tent pegs, constables' staves, trapeze bars, wickets, buggy naves, &c. Many of the samples were used for turnery, and in every case the results were most satisfactory. The wood is reported "to be unrivalled in toughness and adaptability for turning, as it stands working to the very outside and to the smallest dimensions of any timber without exhibiting any tendency to break off."*

*Annual Report upon State Forest Administration for 1890-91, by Walter Gill, F.L.S., F.R.H.S. Adelaide, October, 1891.

In 1891 "a consignment of the best American grown ash was received by Messrs. Marshall & Co., and their foreman, after comparing the Australian grown timber with it, unhesitatingly gave it as his opinion that the Australian article was infinitely superior to the American or anything received from any part of the world of the same kind of timber, being a better color and tougher, and working up equal to satin wood, while it never deadens from being polished, and always keeps its color." The *Pinus insignis* has also been grown with the most satisfactory results. It possesses the special merit of requiring less dressing with the plane than any other deal, as a surface can be obtained much more readily thereupon. It takes a good polish, is very tough, and does not split on exposure, which is a great advantage in connection with manufacturing purposes. Mr. Gill, the Conservator of Forests, regards these results "as encouraging in the highest degree, giving as they do most satisfactory proof of the progress already attained in the acclimatisation of some valuable exotic timbers, and also as indicating what may be expected in later years when these timbers shall have been properly matured."

Some interesting experiments have been made by the Conservator of Forests in the cultivation of the date palm in the Far North, at Hergott Springs, 440 miles north of Adelaide.* So far as they have proceeded these experiments have been most successful. In June, 1891, there were thirteen plants four years old, 285 one year old, and fifty-three just planted out that had been reared in the plantation. In December, 1890, the palms of four years old were from 3ft. to 4ft. high, and some of the leaves 4ft. long. An Afghan recently arrived from India, who was well acquainted with the cultivation of the date palm, considered that the soil at and about Hergott was well adapted to the growth of the palm. He also stated that it would take seven years in India for the palms to grow to the height they had reached at Hergott Springs in four years. In 1891 a number of suckers were obtained from Kurrachee (India), and early in 1892 236 arrived in the colony in good condition. They were forwarded to Hergott Springs, and 135 were planted in the ground and seventy in pots for convenience of removal. In July, 1891, 113 suckers were living, eighty-five in the ground and twenty-eight in pots. In order to make room for them it was necessary to remove and pot fifty-nine of the smallest seedlings, but they all perished except six. The remainder are doing well. If only a small percentage of the suckers becomes well established a great advantage will be secured, as they consist of some of the best kinds of date known in the neighborhood of Kurrachee, and they will soon make up the number lost by their own suckers. In

* About 29·20 S. lat.

response to inquiries made by the Agent-General to the French Government, valuable information has been courteously supplied, and the Director of the Experimental Gardens at Hamma, in Algeria (M. Charles Rivière), intimated his willingness to procure suckers of the "Deglet Noor," a valuable kind of date, get them thoroughly rooted, and dispatch them in charge of a person competent to take care of them during the voyage. Directions have been given by the Government to secure 450 female and fifty male palms of the kind mentioned. They must first be obtained from a district of the Sahara, known as "Oued Rir," which is probably a long distance from Hamma, and then be thoroughly rooted before they can be forwarded to the colony. As the suckers do not strike readily this process will necessitate considerable delay. Some time must therefore elapse before they can arrive here. The plan proposed removes all doubt as to the ultimate issue of the undertaking, because, after having properly taken root, if they receive due attention in the voyage, hardly a plant should fail to reach South Australia in good growing condition, and in the course of transfer to their new *habitat* no check whatever will be experienced. As the result of the various efforts which have been made it is not too much to anticipate that the introduction of the best kinds of date palm will before long become an accomplished fact.*

*Report on State Forest Administration by Mr. Gill, F.L.S., F.R.H.S., Conservator of Forests, 1892.

CHAPTER XVII.

South Australia Rich in Minerals—Variety of Metals—The Record of Mines—Mineral Resources but Little Used—Causes of Neglect—Number of Reputed Mines in the Colony—Low Price of Copper—Its Effect on Mining—Mineral Claims, their Extent—First Mine in South Australia at Glen Osmond—Discovery of the Kapunda Mine—Mr. Selwyn's Report—The Burra Mine—The Montacute Mine—Yorke Peninsula Copper Deposits—The Wallaroo and Moonta Mines—The Blinman Mine—Floating Companies—Paid-up Shares—Export of Copper and Copper Ore, &c.—Its Value—Price of Copper in London for Twenty Years—Silver-lead—Its Wide Distribution—Number of Mines Recorded—Export of Silver-lead—The Aclare Mine—Quality of the Ore—The Ediacara Mines—The Eukaby Mines—The Kangarilla Mine—The Kyneton Mine—The Strathalbyn Mine—The Talisker Mine—Bismuth Mines at Balhannah—Mount McDonald and Murninnie—Cobalt—Nickel—Cobalt Claims near Blinman—Iron—The Mount Jagged Mine—Manganese—Gold—Its Discovery in Australia in 1823 near Bathurst, N.S. Wales—Menge, the Mineralogist—His Discoveries—First Gold Mine Worked in Australia—The Victoria Gold Mine—Opened in 1846—Its History—South Australian Gold at the Exhibition of 1851—The Echunga Goldfield—Diamonds Found There—The Barossa Goldfields and Reefs—Para Wirra—Talunga—Ulooloo—Mannahill—Oulnina—Teetulpa—Waukaringa—The Peake—Number of Gold Mines—Wide Distribution of Gold—Amount Exported—Its Value—Probable Value of Gold Produced and Taken out of the Colony since 1852—Minerals for the Manufacture of Paint—Cement—The Broken Hill Mines—Coal at Leigh's Creek.

The province of South Australia is wonderfully rich in minerals. Metals of almost all descriptions are found within it, and for many years the mining industry has formed one of the most important and valuable aids to the development of the colony. Gold, silver, copper, iron, tin, lead, antimony, bismuth, manganese, cobalt, and other metals, are known to exist in various places, and mines containing many of them have been worked with success and at a large profit. The South Australian copper mines possess a world-wide fame; but, except in a few remarkable instances, the mineral wealth of the colony has not been developed on a scale at all proportionate to its extent and importance. In an official publication Mr. H. Y. L. Brown, F.G.S., Government Geologist, has collected a mass of valuable information on the subject of the mines of the colony*, and has given a brief history of most of the mining enterprises and discoveries which have been brought before the public since the colony was founded. It may be a matter of surprise that with

* Record of the Mines of South Australia, H. Y. L. Brown: Adelaide, 1893.

so much mineral riches, and so many places where they undoubtedly exist in quantities which would make splendid returns in older countries, South Australia has done so little to make use of that which is actually spread broadcast over immense tracts of her country. Mr. Brown states in the work above mentioned that the mineral "development has been so far merely the indication of future possibilities, and nowhere is there any sign of maturity. Already several of the chief products of this country have become celebrated, but as yet little, if anything, is known of many of its mineral deposits. Excepting in a few notable instances, mining has been carried on desultorily and ineffectively, sometimes with a little enthusiasm, followed by a depression proportioned to the extravagance of large expectations, but never with such steady perseverance as might reasonably have been expected in regard to an industry calculated to win great wealth and to support a large mining population." The backward condition of mining enterprise in a country so largely endowed with mineral deposits as South Australia is can be readily explained. Want of proper knowledge on the part of prospectors and discoverers, as well as amongst reputed mining experts, led to the inception of many ventures which ended in failure. The same cause brought about the abandonment of really good mining properties, because they were neither judiciously opened up nor properly worked. The dearness of money also marred the prosecution of many enterprises which in all probability would have proved to be remunerative. When persons possessed of capital could lend it on mortgage on first-class security, at an interest of 10 per cent. or even more, they were not easily tempted to incur the risk which always attaches to mining ventures. The operations of speculators also had an disastrous effect on the successful prosecution of mining enterprises. On the floating of a mine the shares were rushed up to a premium before almost anything had been done to prove the value of the property. All that was looked for by those who dealt in the shares was a profit on the scrip as it changed hands. The shares thus to a large extent fell into the possession of persons who had not purchased for investment, but solely for speculative purposes, and when calls were made they were not responded to. The ventures thus collapsed and were either abandoned or wound up. The "Record of the Mines of South Australia," referred to above, gives accounts of some hundreds of mines containing copper silver-lead, iron, bismuth, cobalt, and nickel, gold, manganese, &c., exclusive of others projected in the Northern Territory, of which the vast majority are unworked. The Inspector of Mines in an official return showing the number of "reputed mines" in the province at the close of 1892 gives the names and situations of only twenty-six copper mines, thirty gold mines, twenty silver mines, two cobalt mines, three bismuth

mines, and one coal mine, making no more than eighty-two in all, and in many of them operations are suspended for the present. The low price of copper which has prevailed for many years has largely checked production. Many of the mines are situated at long distances from the seaboard, so that the cost of transport would probably absorb any margin of profit there might be on the ore when raised. Such mines are therefore idle, and their owners must wait for more favorable markets before they can work them again. The colonists, however, are not altogether discouraged by the results of mining enterprises as far as experience extends, nor have they lost faith in the capabilities of the colony as a mineral country, for in the period from 1881 to 1892 no less than 15,984 mineral claims were preferred to the Government, covering an area of 1,250,064 acres. In the same period 2,267 mineral leases were issued from the Crown Lands Office, extending over an area of 234,132 acres, and 17,603 gold licences were taken out by miners.

The first mine discovered in South Australia was found at Glen Osmond, on the western flank of the Mount Lofty Ranges, about five miles south-east of Adelaide.* This was in the year 1838. Some blocks of what was supposed to be limestone cropping out on the side of one of the hills on being broken proved to be pure galena. In 1839 the proprietor set a few men to work on the section to raise ore. Some six or seven veins or lodes were discovered, and about twenty tons of good lead ore were raised and shipped to England, which on assay gave 75 per cent. of lead and about 18ozs. silver to the ton. In 1841 the silver-lead veins of the Wheal Gawler Mine (as it was called) were opened and worked with very primitive appliances. Some of the ore tested in England at the Governor and Company's smelt mills gave 77 per cent. of lead and over 19ozs. of silver to the ton. "For a time anticipations of success stimulated the adventurers; but ere long it was found that expenses exceeded profits, the result being a suspension of operations. But in 1844, the property being leased to a small company, operations were resumed. Other prospectors also set to work in the immediate neighborhood on metalliferous outcrops, and a little later on smelting works were established, the ruins of which for years have attested the enterprise of these pioneer miners. Again it was found that profits did not overtake the very considerable outlay, and mining in that neighborhood was abandoned long before the value of the lodes had been ascertained. After the lapse of many years, during which time the properties lay unworked, the several mines in the locality have been recently reopened, and good marketable ores raised. The results, however, are not yet such as to prove remunerative to the shareholders, and the available capital being small it is feared that

* Experiences of Life in South Australia: J. W. Bull. Adelaide and London, 1884.

these undertakings will not be carried on to proper development."* At the present moment these mines are lying idle.

The next mineral discovery in the colony was the Kapunda Copper Mine, the oldest copper mine in the province. It was found in 1842, by Mr. F. S. Dutton (afterwards Agent-General) and Mr. C. S. Bagot. It is situated at a distance of some fifty miles north of Adelaide. The discoverers secured the freehold and worked the property until 1879, when it was sold. The actual output of ore during the time the mine was being worked was never officially made public, but it was estimated by Mr. J. B. Austin at about 2,000 tons per annum. The discovery of this mine created great excitement at the time, especially in Adelaide, and it gave rise to considerable activity in the search for minerals all over the colony. The discovery contributed greatly to stimulate trade, and the fortunate owners amassed considerable wealth from its produce. After the mine was sold it was worked by miners on tribute for a considerable time. Some few men are at work upon the ground at the present time, but the results of their labors are not made public. Mr. A. R. C. Selwyn, Government Geologist of Victoria, visited the mine in 1859 and briefly described it. The peculiarity of the deposits in which the copper is found renders the reproduction of Mr. Selwyn's account of them interesting:—

"The mines are worked in a very peculiar soft aluminous rock of various colors—from pure white passing into pink and red, grey and blue. Frequently it is either covered with spots or traversed at right angles to the beds by thin veins or streaks of a pure white soft mineral, probably silicate of alumina. The galleries are all driven with pickaxe and spade, the rock seldom being hard enough to render the use of powder necessary. The general dip of the beds near Kapunda is west 10° to 20° south. The veins, of which there are several running in parallel lines north by east and south by west, have also a westerly underlay from 25° to 80°. To the N.E. they all terminated abruptly in a soft dark-blue pyritous slate, which runs N.E. and S.W., dipping to the N.W., from 25° to 70°. On the southern strike the veins are all intersected by a series of nearly east and west faults, throwing them to the eastward in steps. The ores, blue and green carbonates, and red and black oxides, and native copper, seem to occur in very irregular veins and patches occasionally in the planes of the bedding."

"The Burra Burra Mine, about 100 miles from Adelaide, a little to the east of north, was found in 1845 by a shepherd named Pickett, and is singularly situated on bald hills standing 130ft. above the surrounding country. The ores obtained from this mine have been chiefly red oxides,

* Record of Mines.

very rich blue and green carbonates, including malachite, and also native copper. The discovery of this mine, supporting, as it did at one time, a large population, marked a new era in the history of the colony. The capital invested in it was £12,320 in £5 shares, and no subsequent call was ever made upon the shareholders. The total amount paid in dividends was £800,000. After being worked by the original owners for some years the mine was sold to a new company, but during the last few years it has not been worked, owing in some degree to the low price of copper and also to the fact that the deposit then being worked apparently became exhausted. For many years the average yield was from 10,000 to 13,000 tons of ore, averaging 22 to 23 per cent. of copper. It is stated that, during the twenty-nine and a half years in which the mine was worked, the company expended £2,241,167 in general expenses. The output of ore during the same period amounted to 234,648 tons, equal to 51,622 tons of copper. This, at the average price of copper, amounted to a money value of £4,749,224. The mine stopped working in 1877. In 1859 the number of men employed was 1,170. In the deeper levels regular lodes are met with, running north and south, containing very rich ore of malachite, red oxide, and grey sulphuret of copper; but above the 30 fathom level there is no appearance of lodes, the ore (malachite and carbonate) being deposited with the greatest irregularity. The blue carbonate often occurred in round nodules, with regularly formed crystals projecting from the surface. The malachite was found in the form of stalactite, in slabs incrusting fissures and irregularly-shaped masses, which had been deposited in cavities of the rocks. The country rocks are much broken and twisted, and consist of a cherty siliceous formation, crystalline white and grey limestone, blue slaty shales, and argillaceous sandstone. Just prior to the stoppage of the Burra Burra Mine, and whilst Captain Sanders was in charge, it is understood that good percentage ore was being obtained from a lode which had been opened at a comparatively shallow depth beneath the open basin whence had been quarried the enormous yield of carbonate ores. Since the cessation of all active operations it has been reported that overtures have been made to the proprietary company for reopening the mine, but it to be presumed that no satisfactory arrangement has been arrived at, inasmuch as the mine still lies idle.—("Record of the Mines of South Australia," pp. 6 and 7.)

The Montacute Mine, one of the earliest discovered in the colony (1843-4), is situated in the Mount Lofty Range, about ten miles N.E. from Adelaide. The site is on a steep spur of the range, and extensive outcrops of ore were visible on the surface. According to Mr. J. B. Austin (1863) the ores were chiefly yellow and peacock ores averaging

18 per cent. of copper. Some native copper was also met with. Work at this mine ceased at the time of the discovery of the goldfields in the other colonies, and has not been resumed.

The copper deposits on Yorke Peninsula cover an immense area of country, and have developed into some of the richest and most important copper mines hitherto discovered in South Australia. The principal of these are the Wallaroo and the Moonta Mines. The first was found in 1860. It is about ten miles north of the Moonta Mines and, including the Kurilla, formerly worked as a separate undertaking, extends over 2,000 acres of Crown lands. "There are five lodes in the property besides the Kurilla lode. The main lode is nearly vertical, though occasionally the underlay is a little to the north and sometimes a little to the south. The strike of the lode is 10° to 20° south of east. The lodes vary in width from a few inches to 12ft. or 14ft., and the ore they contain is chiefly chalcopyrite. As raised from the mine it varies from 3 to 10 per cent., with occasionally small quantities of rich ore. The deposits of copper ore are chiefly along the lead of the lodes and are associated with 'gangue.' The present supply is mostly chalcopyrite. There are no regular shoots. In connection with the limestone just over the lode, a little green carbonate of copper was found, but a large proportion of the green ore was atacamite. Below this oxides of copper were met with, both red and black, then grey and black sulphides with iron pyrites. These deposits of ore were mostly exhausted many years ago. Chalcopyrite came in at varying depths of from ten to thirty fathoms, and this is almost the only kind of ore now being raised at the mine. It continues down to the bottom of the deepest shaft. The veinstone associated with the metallic minerals is composed of portion of the bedrock, iron pyrites, calcareous spar, &c. The country formation is schistose rock. The quantity of ore raised from the time the mine was opened to December 31st, 1886, was 451,016 tons of 21cwts., of the value of £2,030,143 in the colony. It yielded on the average about 10 per cent. of copper. Thirty shafts, including trial shafts, have been sunk, the deepest being 195 fathoms. The water level was reached at about five fathoms. The drives, levels, &c., including Matta and Kurilla, extend a distance of twenty miles. The yield now varies from half a ton to six tons per fathom."

"The Moonta Mine was discovered in the year 1861, and has proved to be one of the richest mines in the colony. It is situated on Yorke Peninsula, on the eastern shores of Spencer's Gulf, and the property comprises 2,673 acres of land leased from the Crown. There are five main lodes on the property, and from each of these various spurs and minor lodes branch out, and are connected with the main lode by occasional cross veins. Including these there are twenty-seven lodes. Their direc-

tion is north-westerly, and their underlay varies from 3ft. to 6ft. in the fathom. The main lode bears N. 20° E., and the others vary from that to N. 45° E. The width ranges from 6in. to 20ft., and the ore obtained from the main lodes in the present workings is chiefly chalcopyrite and occasionally bornite. The bulk of the veinstone—chiefly quartz and at times portion of the bedrock—as raised ore and 'gangue' gives from 2 to 5 per cent. of copper, but sometimes clean chalcopyrite gives 20 to 30 per cent., and bornite from 30 to 50 per cent. The country rock is feldsite porphyry, orthoclase porphyry, a special variety. The quantity of ore raised from the mine from the commencement to June 30th, 1886, equalled in gross tons of 21cwts. 476,180 tons, and the average percentage of copper on net dry weight of dressed ore equalled 20 per cent., and the total value in the colony of this ore amounted to £4,579,097. Seventy-seven shafts have been sunk, including twenty-one trial shafts. The shafts are vertical for a short distance, then mostly follow the dip of the lode. The deepest shaft is 287 fathoms (1,722ft.), and the levels measure, approximately, twenty-nine and a half miles. The aggregate length for thoroughfares, including drives, winzes, and shafts, is about forty-two miles. The water level was reached at about five fathoms. The deposits of copper ore are chiefly along the lead of the lodes associated with 'gangue,' the present supplies being mostly chalcopyrite and occasionally bornite. An exceedingly small proportion of green carbonate ore was formerly found close to the surface; but a large proportion of the green ore was atacamite, and this was generally met with below the other. Sometimes red oxide was found with the atacamite. The yield varies from half a ton to eight tons per fathom. The peculiarity of this cupriferous district was disclosed by the removal of these ores and the sinking of these shafts—namely, that although the lodes continued regular, no further ore was met with, and, as a rule, no stain of copper was seen until the depth of from five to ten fathoms was reached, when rich oxide and malleable copper deposits were struck, and after that black and grey sulphides. These deposits, however, were chiefly worked out in past times. Chalcopyrite occurred at an average depth of about twenty fathoms, and this, with occasional deposits of bornite, has held down either in large or small proportions to the present deepest point of operations. This mine at one time employed upwards of 1,600 men and boys, and still keeps a very large number (1,138) at work. Copper ore raised during four months ending December 31st, 1889, 5,759 tons, assumed to be the average rate of output. This mine is amalgamated with the Wallaroo Mine."

One of the most promising of the copper mines yet worked in the colony is the Blinman. It is situated 272 miles north of Adelaide,

and 120 east of Port Augusta in the Flinders Range, at an elevation of 2,000ft. above the Parachilna plains. It "is supposed to have been found in the year 1862 by a shepherd named Blinman, who observed a great outcrop of mineral on the top of a hill about 90ft. above a creek lying to the eastward. This mass was about 350ft. in length, nearly 100ft. in thickness at one part, and of considerable height. On being tested it proved to be rich copper ore. The area of the property is 640 acres. The workings consist of a main shaft, 450ft. deep, from which drives have been put in north and south, which are known as the 15, 25, 35, 50, 60, and 70 fathom levels. The longest levels northward, which are 75, 25, 35, and 50, extend 300ft. from the shaft; southward, the longest level is the 15 fathom, which extends 250ft. The lowest, or 70 fathom level, has been driven 130ft. north, and the same distance south. The rock formations are crystalline siliceous limestone; bed rock, fine argillaceous and calcareous sandstone, quartzite, and, in some places, clay slate, having a vertical dip, and striking north and south through the mine. The copper ores, which at the lower levels consist chiefly of sulphides, are disseminated through the rocks in specks, patches or pockets, strings and veins, running in an east and west direction across the rocks, and also with them, forming altogether a metal-bearing belt of strata, in places 20ft. to 30ft. wide. Some of the cross veins are of considerable size, and in one or two places they are of sufficient importance to be classed as lodes. They are also richer in ore than the main ore-bearing strata which they penetrated. So far as can be seen there is no defined boundary between the ore-bearing strata and the barren rocks; in other words, the full width of ore-bearing rock has not yet been determined. . . . . . The upper portions of the mine, from the surface to the 35 fathoms level, have been stoped out in an irregular manner—probably the bunches of richest ore were followed, leaving large cavities separated by portions of unworked ground, which contains an appreciable percentage of copper ore, and which will probably be worked at some future time. These excavations are of considerable width, in places from 15ft. to 20ft., or more, and a large quantity of ore must have been raised from them. The present workings are at the 50 fathoms level, and between that and the 70. Here the ore is being stoped out to a width of 25ft. to 30ft., the workings more resembling those of a quarry than of a mine. The main shaft was, at the time of the Government Geologist's visit, 35ft. below the 70 fathoms level. This mine possesses one or two special advantages: as the country rock is solid and without joints, no timbering is required, and the stopes, after the removal of the ore, are left open; and all the material raised from the mine is ore-bearing, so that, with the exception of that which comes out of the shaft, no mullock has to be

raised. The oar-bearing belt of strata is more or less vertical for about 300ft., and then underlies to the eastward at a high angle. The veinstone associated with the copper ore are calcspar, sulphate of barium (heavy spar), and occasionally quartz. The rocks forming the ranges, which have an elevation of 2,000ft. above sea-level, consist of alternating strata, composed of quartzose, sandstones, and shales, siliceous and dolomitic limestone, clay and calcareous slates and flagstones, sandstones, quartz, brittle shales, and kaolinised slates and sandstones. In the neighborhood of Blinman these strata form an anticlinal arch, owing to the intrusion of igneous rocks (greenstone, eurite, &c.), which appear at the surface at a few places. In the centre of the arch the strata are vertical, and have a north and south strike, while on each side they are inclined at various angles to the westward and eastward. It is in the centre of these disturbed strata that the copper-bearing strata in which the mine is situated occur. Mr. Masey, the colonial director, has supplied the following information concerning this mine:—The value of copper sold previous to the 'seven years drought' (about 1874) when the mine ceased working, was £250,000. In 1881 it was re-started and worked till 1884, when the fall in the price of copper took place, the output at the time being from 80 to 100 tons of 23 per cent. ore per month. In the beginning of 1889 the mine was again started, and was put into thorough working order, the output being raised to 150 tons of 23 per cent. ore per month, which was sent to the Wallaroo Smelting Works. The ordinary ore raised averages 8 per cent., and is dressed up to 23 per cent., whilst that from the crosscourses and leaders, which can readily be separated by hand-picking, averages from 30 to 40 per cent. of copper. The number of men employed above and below, 80; expenditure in wages and general charges per month, £1,200. It may be added that whilst it is apparent from the width of the stope between the 50 and 70 fathoms levels that great quantities of ore were removed in former times, it is clear that there is no falling off in the yield as the mine gets deeper; and I am of opinion that the strata will continue to be ore-bearing to a great depth, and that the mine is to all intents and purposes a permanent one. . . . . ."

The Inspector of Mines after a recent visit reported that a strong lode ran through the property, which besides maintaining an equal percentage of copper made at intervals extensive deposits of ore. Thousands of tons of carbonates must have been extracted formerly, and poorer places were left unworked, because of lack of water for dressing and the heavy cost of transit. But the water difficulty has been in a large measure overcome, and there should be produced 150 tons of 23 per cent. copper per month, besides 40 tons of 28

per cent. carbonates. The ore brings £8 per ton above Chili bar quotations, and the cost of transit to Wallaroo and smelting charges is £4 12s. per ton, making the mine payable even at the present low price of copper.

Special notice has been taken only of some of the most important copper discoveries which have been worked. There are numerous others now lying idle, which, with the application of adequate capital and the use of the best scientific methods of working them, would produce valuable returns. The low price of copper which prevails just now does not offer much encouragement for mining for that metal; but that condition does not apply to other metals in which the colony is rich, and which always sell at paying rates. The prosecution of *bonâ fide* mining ventures has been much discouraged by a vicious principle adopted by proprietors of mineral discoveries who place them in the market. They make large reserves of "paid-up shares" for their own exclusive benefit, and so expect the public to find the capital to make their shares profitable. The practice affords the genuine shareholder who pays hard cash an indifferent prospect of remuneration until the promoters who have taken no risk have been satisfied. It absolutely forestalls the prospective rewards of patient industry, which is not likely to thrive under such an arrangement.

The production of copper has played a most important part in the prosperity of the colony, and has given a new and better turn to its affairs when its commerce was languishing. Even now, although the European markets are much more restricted than in former days, copper mining finds employment for a large number of colonists and trade for the inhabitants of the towns adjacent to the scenes of their labors. Up to the end of 1892, the latest period to which the official statistics have been brought down, the value of copper, copper ore, and regulus exported from the colony amounted to the large sum of £14,775,739, that is, according to the value placed upon the exports at the ports of shipment. It is well known, however, that in many instances the actual sums realised were greater than the Customs value recorded in the colony; so that the monetary advantage to the persons concerned in all probability was considerably greater than that indicated by the foregoing figures. The total value of all the minerals exported from the colony up to the end of 1892 amounted to £20,778,763.

The following table, which gives the prices of copper in London from 1872 to the end of 1892, will be found interesting. The highest point reached was in June, 1872, when South Australian copper was sold at £112 per ton. From that time its value steadily declined until it came down to £43 per ton in April, 1889. Since that time the market has

recovered to some extent, but not sufficiently to encourage the extensive operations which were carried on in former years:—

Month.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.	1881.	1882.
	£	£	£	£	£	£	£	£	£	£	£
January	97	96	93	93	90	83	76	65	77	72	74
February......	93	93	90	93	88	77	76	64	80	72	69
March	96	92	88	90	84	77	74	64	79	72	69
April	102	97	85	90	83	76	74	63	76	69	69
May	105	95	86	90	84	75	73	62	71	69	71
June	112	90	88	90	78	76	73	62	70	69	71
July	110	91	88	88	81	79	73	60	72	69	72
August	108	92	87	89	76	79	70	62	72	69	72
September	98	94	88	92	78	79	69	65	72	69	73
October	88	93	91	91	84	79	67	72	71	67	75
November	89	93	95	91	86	74	67	73	72	70	75
December	90	94	96	91	85	74	68	74	72	75	74

Month.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.	1892.	
	£	£	£	£	£	£	£	£	£	£	s.
January	71	65	—*	46	44	84	82	55	58	51	15
February........	71	64	—	45	44	82	83	52	57	49	15
March	70	62	—	47	44	85	51	52	60	56	5
April	69	62	—	47	45	85	43	53	60	50	10
May............	68	63	—	45	44	86	45	57	60	50	15
June	68	61	—	45	44	87	46	62	64	51	5
July..........	68	60	—	44	45	85	46	62	62	49	10
August	68	60	—	44	45	88	48	64	61	50	15
September	68	60	—	45	45	93	48	66	61	49	10
October	67	60	50	46	45	83	48	64	57	48	17
November	66	59	47	45	60	83	51	61	53	51	10
December	65	60	46	44	70	82	55	59	53	51	15

* Nominal; no sales from December, 1884, to October, 1885.

Silver-lead is very widely distributed over the colony. In the "Record of Mines in South Australia" about 170 different mining properties in which the ore is obtainable are catalogued by the Government Geologist. Many of them have been taken up as mineral claims, but have not been worked. Of others that have been worked to some extent no information can be obtained. Some, no doubt, are valuable, and could be profitably opened out if properly handled. The discovery of silver-lead ore at Glen Osmond was the first indication of the mineral resources which are possessed by the colony; but, although that discovery was not long afterwards followed by other discoveries of a similar character, the industry has been prosecuted in a desultory way only. The official returns of the total exports of silver, lead, and silver-lead ore

from 1838 down to the present time amount to £335,386 in value, as declared at the ports of shipment.

Silver-lead mining has not taken much hold upon the colonists, and, except in a few cases, nothing has been done on a large scale to test the value of the deposits of ore which are known to exist. The splendid returns which the investors have received from the Broken Hill mines in New South Wales, close to the South Australian frontier, do not seem to have stimulated South Australians to work their own silver mines. The quality of the ore in a few of the mines which have been opened, and which at various periods have received attention, will serve to indicate the character of the silver-lead deposits which have been found in South Australia.

The Aclare Mine, situated about forty-three miles south-east of Adelaide, has yielded ore varying in quality from 32ozs. to 302ozs. of silver per ton, and the lead has varied from 40 per cent. to 50 per cent. In a report from the Inspector of Mines it is stated that "on the surface the ore consists of carbonate of lead, and at depth carries gold, silver, lead, zinc, antimony, iron, and sulphur, and to a depth of 25ft. the carbonate yields 50 per cent. of lead and 90ozs. of silver to the ton." The mine, the property of a company in England, is still being worked.

The Almanda Mine distant eighteen miles S.E. of Adelaide was originally worked as a copper mine (1850). The capital supplied was small, the sinking shallow, and the returns not satisfactory; operations therefore ceased. About sixteen years later the ground was examined again. It turned out to be rich in silver. The "Record" states that seven samples of ore which were assayed gave from 44ozs. to 115ozs. silver to the ton of ore; five others yielded from 25ozs. to 75ozs. silver to the ton, and three others from 30ozs. to 75ozs. In 1868 a mineral claim was taken out and about 6,000oz. of silver were raised. Deeper sinking brought the proprietors into hard ground. In 1877, at a depth of 21 fathoms, the stone raised gave silver 88ozs. to 163ozs., gold from 1oz. 13dwts., and 7½ to 16 per cent. of copper to the ton. At length water came in too rapidly to be kept down by hand labor, and the mine ceased working. The capital subscribed was too small to admit of a proper exploration of the deposits which exist in it. At one time this mine commanded a great deal of attention.

The Ediacara Mines in the north, some miles west of Beltana, have yielded ores ranging from 7½ozs. to 342ozs. of silver to the ton. The Eukaby Hill Mine has afforded samples of ore which ran as high as 119ozs. of silver to the ton. The Kangarilla Mine, twenty-two miles S.E. of Adelaide, has been very favorably reported on by the Inspector of Mines; but particulars have not been published with regard to the rich-

ness of the ore. The Kyneton Mine has yielded 62ozs. of silver and 76 per cent. of lead per ton. One hundred and twenty acres of private property are held by the company at a low rental and a royalty of 5 per cent. At Strathalbyn a silver mine yielding 65 per cent. of lead and 45ozs. of silver was worked some years ago, but is now idle. The Talisker Mine, near Cape Jervis, on the south coast, was opened in 1862, and was worked for about ten years. Some of the surface ores went as high as 200ozs. of silver to the ton, but the average of the mine was about 40ozs. The lead produced in 1870 averaged nearly 70ozs. of silver to the ton and in 1871 the average rose above 86ozs. to the ton. The mine has been officially reported on as a valuable property.

The mines mentioned above have been taken here and there from the official Mining Record in order to show how widely silver-lead, silver, and their allied metals are distributed over the colony. Many more could have been named which indicate valuable deposits, as far as quality of ore is concerned, but which have not been turned to account. Time doubtless will raise these great resources of the colony into the prominence which their importance deserves. Until the mining industry is regarded as a settled pursuit, instead of being dealt with as a means of speculation, the development of the mineral wealth of the province will be slow.

Bismuth has been found in several places in the province, though the Mining Record made mention of only three mines. The Government Geologist, quoting from a communication from Mr. J. B. Austin, states the Balhannah Mine "was first worked for copper, of which a considerable quantity was obtained near the surface. Bismuth was found associated with the copper, and the quantity increased, until it appeared likely to prove more valuable than the copper. Gold was found in the bismuth, and some beautiful specimens of small nuggets of pure gold in native bismuth were met with, the precious metal being in the proportion of 5ozs. of gold to 1cwt. of bismuth. Cobalt in small quantities, also antimony and plumbago, are said to have been found in this remarkable mine. The workings were carried down to a depth of 50 fathoms, where there is a wide but dredgy lode, yielding about one ton of bismuth to the fathom, with some copper and gold. From £25,000 to £30,000 worth of copper was raised from this mine, and about £7,000 worth of bismuth. Some exceedingly rich specimens of gold in ironstone gossan were obtained, and several nuggets, the largest weighing about 2¼ozs. A considerable quantity of white carbonate of iron is also found."

The Mount MacDonald Mine, N.E. of Yudanamutana, contains four lodes, one of which only has been worked upon at present. It is 9ft.

wide, without discovery of walls as yet, and contains oxide and carbonate of bismuth associated with carbonate of copper. The yield of bismuth ranged from 19 to 60 per cent., and of copper 20 per cent. The Murninnie Mine, containing bismuth and copper, is situated on the western shore of Spencer's Gulf, six miles inland. It is sixty-four miles south of Port Augusta and 136 north of Port Lincoln. There are five lodes, bearing north and south with but little underlay. They vary in width from 1ft. to 10ft., and the ores they contain are bismuth, copper, nickel, silver, and cobalt. The percentage of bismuth varies from 18 to 79 per cent., and copper 10 to 20 per cent. The country rocks consist of quartz, ironstone, and decomposed slate and hard slate. Near the adit in the gully there is a little granite. About 1,000 tons of ore have been raised, which was stated to be worth about £44 per ton in its natural state. A large quantity of the ore was sent to England, but the cost of reducing it was not satisfactory to the directors of the mine. The ore, which had not been treated, was reshipped to the colony, and was then subjected to a process invented in South Australia which it was thought would give more favorable returns than the process used in England. The experiment ended in failure, and, as the shareholders would pay no more calls, the work at the mine was discontinued and the property was sold. Plumbago has been found in the Murninnie Mine in considerable quantity, but its quality is low.

A few mineral claims have been taken out, supposed to contain cobalt and nickel. With one exception they are all situated in the far north of the colony. Only one at present gives promise of being profitable. It is comprised in Young's cobalt claims, near the township of South Blinman. The report of the Inspector of Mines, made early in 1890, was highly favorable, and it is not unlikely that the lodes, when worked, will produce results which eventually may prompt the exploration of other cobalt and nickel deposits. At present very little is known in South Australia of these kinds of minerals.

Iron in various forms is abundant in the colony, but much has not been done to make use of the very rich ores which have been discovered. Some splendid specimens of ore were sent to the Paris Exhibition of 1871. In 1873 the Mount Jagged Iron Mine, which is situated about thirty-five miles south of Adelaide, was worked by a small company. Smelting works, consisting of a furnace and blowing cylinder, were erected, with the necessary sheds, &c. Water and fuel were abundant at the site of the works, and also crystalline limestone in large boulders. The supply of ore was from the summit of Mount Jagged 500ft. above the works. The Mount is capped by a mass of black oxide, yielding 50 per cent. of pure iron and unmixed with any matrix. About fifty tons

of iron were smelted; but, owing to the ignorance of the furnace-keeper, the furnace was frequently allowed to get cold, and then had to be cut out. This so damaged it that at last it became unsafe to work, and there being no funds in hand to build a fresh furnace, the company was wound up.

Another important discovery of iron has recently been reported on by the Inspector of Mines. It is called the Mount Hematite Iron Mine, and is situated about eleven miles north of Beltana, about two and a half miles east of the Great Northern railway. The claims are under mineral licences, and comprise about 160 acres. On the north section there are some large outcrops of brown hematite iron, which yielded on assay 56·4 per cent. of iron and 5·5 per cent. of silica. It appears to be a bed resting upon calcareous slates and sandstone. No correct idea as to its depth or as to the quantity of ore exists. The Inspector of Mines is of opinion that from 15,000 to 20,000 tons of ore could be quarried. The deposit is near the Leigh's Creek Coal Mine; and if the country around is explored for iron deposits, and enough ore is found to work for some years, it is probable that it would pay the coal companies to make pig iron. The property is reported to be good and the ironstone of good quality.

Manganese deposits have been found in a few places, and at Boolcunda, north-east of Adelaide about 258 miles, they are abundant and rich. At the South Australian Manganese Mine the yield has been large, and for three or four years ending in 1890 from 3,000 to 4,000 tons per annum have been sent away.

The gold discoveries in Australia completely altered the condition of the colonies which were established there, with one exception. The pastoral and agricultural settlements, which were slowly working their way into the commerce of the world, suddenly developed a new importance, which in an incredibly short period changed them from being Crown colonies into practically independent States. The time of the first discovery of gold in Australia is uncertain. The first find is supposed to have been made in New South Wales at a very early period of its existence by a convict prisoner. The discovery, it has been stated, was kept secret because of the confusion which the knowledge of the discovery would have entailed on the affairs of a penal settlement. It has been a matter of common report that a prisoner who produced a lump of gold, which he said he had found, was punished for having it in his possession, because it was believed that it had been obtained by melting down a gold watch case or some jewellery which had been dishonestly obtained. The truth of these stories is still problematical, though it is not improbable that they rest on some foundation of truth.

It has been stated that the first gold discovery in New Holland was made in South Australia.* This, however, is incorrect. The first authentic discovery of gold is contained in an extract from Assistant-Surveyor James McBrian's field book, bearing date February 16th, 1823, in which the following note appears:—"At 8 chains 50 links to river, and marked gum tree—At this place I found numerous particles of gold in the sand and in the hills convenient to the river." The river referred to is the Fish river, at about fifteen miles from Bathurst, in New South Wales, not far from the spot to which the gold rush was made twenty-eight years afterwards. †According to the same authority Count Strezlecki found gold in the vale of Clwydd in 1839. He reported the discovery to Governor Sir George Gipps, but the matter was kept secret, lest the knowledge of the existence of gold should imperil the safety of the settlement. The Rev. W. B. Clark found gold in the same neighborhood and in the Macquarie Valley.

It is believed that Mr. Menge, a native of Germany, and a mineralogist of great experience, was the first to find gold in this colony. He was amongst the very early settlers, and devoted much time and labor in examining into the mineral resources of the province. He made many important discoveries of mineral deposits, and also of precious stones in various localities, and got together an extensive and valuable collection of specimens, amongst which gold had its place. Where the gold or the other results of his researches came from is not known. When the goldfields in the eastern colonies were found he left the colony, and died on the Victorian diggings in 1852. His collection was dispersed, and the papers he left behind him have not been made public.

The Victoria Gold Mine was opened by a company in January, 1846. It is ten miles east of Adelaide and, as nearly as can be ascertained, in the neighborhood of the Montacute: the property of the company comprised 147 acres. Its career was short. According to the *Royal South Australian Almanack*, 1848, quoted in the "Record of Mines," its history is summed up thus:—"Soon after the operations of the company commenced a vein of auriferous gossan was discovered in the principal shaft, and at length it was found impregnated with native gold of almost perfect purity. Genuine specimens of the gold soon adorned the cabinets of the curious, and the working jewellers of Adelaide were employed to mount South Australian gems in some of the virgin gold thus found in the province. The excitement was extreme. The £2 shares went rapidly up to £30 each, and the *fortunate* purchasers at the

*J. B. Austin, in Harcus' South Australia: Adelaide, 1876.

†Wealth and Progress of New South Wales: Coghlan. Sydney, 1890.

advanced price thought their fortunes were made. But all at once the prizes wore very much the appearance of blanks; a ruinous reaction ensued, and the price of shares went down to £3." From the old Adelaide Mine, of which no record is extant (unless it be identical with the Victoria Mine), gold was raised and formed into a brooch, which was sent as a present to Her Majesty the Queen. This was about 1848. In 1851 gold, the produce of the mine near the Montacute, was exhibited at the Great Exhibition held in London in 1851. It is said that the cost of producing that exhibit was about £10 per ounce.

In the beginning of 1852 the Echunga goldfield was found. The "Record of Mines" gives the following account of it:—"It is claimed that this field was discovered in the early part of the year 1852 by Mr. W. Chapman. The first sign of gold was got on what was known as 'The Company's land,' not far from the old Wheatsheaf Inn, and a thorough search was begun. Very rich surface gold was found on land not far from the place where the first prospect had been washed, on the side of the hill above Donkey Gully. The gold was traced thence to Chapman's Hill, where it was found at the foot of a tree, laid bare by the dripping of water from the branches. Half an ounce was picked up by dry fossicking, and on the following day several ounces of gold were washed from the roots of this tree. An offer of £1,000 reward for the discovery of a payable goldfield was published in the *Government Gazette* of December 18th, 1851. Mr. Chapman, sen., and Mr. Hampton went to town on August 23rd, 1852, to claim the reward, taking with them about 7ozs. of rough gold. The conditions of the reward were that licences (at that time 30s. each) to the value of £1,000 should be taken out during the first two months, and that £10,000 worth of gold must also be found within the same period of time. In two months 684 licences were taken out, being equal to £1,026 sterling. The Messrs. Chapman, Hardiman, and Hampton applied for the reward after an interval of three months, but were not successful. There was no proof that £10,000 worth of gold had been obtained, except the statements made by diggers and storekeepers. They represented that £18,000 worth had been got. The matter was brought before the Executive Council, and a sum of £500 was given to the prospectors, leaving the question of the reward still open. Nineteen years ago two sums of £200 and £300 were paid for the discovery of gold at Jupiter Creek. Mr. W. Barker, a storekeeper on that field, bought gold to the extent of £3,000."

Although the Echunga goldfield can in no sense be classed amongst auriferous deposits such as those of the Ovens, Bendigo, Ballarat, &c., they have been constantly worked ever since they first became known.

Miners who have continued upon them have made money, and some have become rich. It seems as if something more than a living can be extracted from the field; otherwise it would have been deserted long ago. Very large finds by individuals have not been notified to the authorities, but there is no doubt that an immense quantity of gold has been taken from Echunga. Diamonds have been found there also, and a collection of them was shown at the Paris Exhibition of 1871. The specimens obtained by miners on the field have seldom been officially reported, although many have been shown in Adelaide.

Since the proclamation of the Echunga goldfield many other auriferous areas have been found—at Barossa, twenty-two miles north of Adelaide, where there are also gold reefs; at Gumeracha and Mount Crawford, thirty miles north-east of Adelaide; at Para Wirra, twenty-two miles from the city; at Talunga; at Ulooloo, about thirty miles north of the Burra; at Mannahill, eighty miles east of Petersburg; at Oulnina, eighteen miles south-east of Mannahill; at Teetulpa, about fifteen miles east of Waukaringa—where payable gold reefs are being worked; at the Peake, in the far north, and many other places. Some of these fields have produced splendid results; but, except in a few instances, they have been gradually abandoned. The Government Geologist enumerates some 230 reputed gold mines which have been started in the colony. Many of them have not proved to be of much value; others have not been worked, but a very large number have shown good results, though the operations carried on to develop them have not been conducted in such a manner as to prove their real value.

From what is stated above, it is plain that gold is very widely distributed over the colony. The various fields cover an enormous area, and it must be a matter of surprise that the official returns show such insignificant results from the labor that has been expended upon them. In the "Record of Mines" it is shown that between 1873 and 1880 inclusive that 5,835ozs. of gold, valued at £22,705, were exported; and in the "Statistical Register" for 1890 it is noted that 70,095ozs. of gold, valued at £267,819, were exported from South Australia. There are no published records which show the export of gold from the colony between 1852, when the Echunga fields were first worked, and the year 1873. During the twenty-one years which intervened between the two periods when the Echunga fields and other auriferous areas were in greater or less active operation the quantity of gold produced must have been large. It has been most difficult, if not impossible, to obtain from diggers any reliable account of what they may have found. Even the storekeepers on the diggings, who dealt with the diggers and took gold in payment, could only surmise as to who was doing well and who

not. The quantity of gold raised has always been kept secret. The wardens of the field perhaps were able to form an approximate estimate of what went on, but, even with their opportunities, they were more likely to under-estimate than to over-value the productiveness of the different claims; however, no reliable returns were made through their agency. The gold resources of South Australia, although considerable, have never impressed the minds of the colonists to such an extent as to induce them to regard them as similar resources are regarded in the eastern colonies—as leading factors in the industries of the colony. The causes of the apparent lack of enterprise in this direction have already been explained.

The value of the gold exported from the colony appearing as no more than £267,819 in the course of forty years since the Echunga diggings became known indicates only the quantity which was entered for export at the Custom House. It is manifestly short of the facts of the case. Mr. Harcus, in 1871, stated that from the Echunga diggings alone over £600,000 worth of gold had been obtained. There is no record of what has been raised during the twenty-one years which have elapsed since that time. In the "Record of Mines" only sixteen claims out of the 230 which are reputed to be gold mines have made any report as to their earnings. Their returns amount to £255,269 over and above the quantity mentioned by Mr. Harcus. This would give £855,269. Many other mines have produced substantial results, but they have not been published. Taking into account Mr. Harcus' estimate, the quantity returned from mines quoted in the "Record," and the large quantity taken to Melbourne by miners for sale at the Mint there, where a better price could be obtained for gold than from the banks in the colony, it is not unreasonable to estimate that the actual production of gold in South Australia has not fallen short of £1,500,000 sterling in value. This would give about £37,000 per annum. Anything approaching to spirited enterprise and good management in all likelihood would have produced larger results.

About four years ago some important discoveries of valuable gold reefs were made at Wadnaminga on the Oulnina sheep run, about fifteen miles to the south-east of the Mannahill station, on the railway line to Broken Hill. A reef of quartz between slate rocks was found cropping out on the surface, and gold was plainly visible in the stone. An attempt was made to open up the mine, but it was abandoned after short and not very energetic operations. Since then the original claims have been taken up and worked in connection with others. Several claims were pegged out, and a moderate amount of work was done in them; but the want of water discouraged the prospectors greatly, and several months elapsed before

the richness of the reefs was fully recognised. About thirteen months back some Victorian mining experts visited Wadnaminga and secured several claims. They brought to Adelaide a magnificent collection of rich specimens of gold in quartz and ironstone, obtained from the Countess of Jersey claim at Wadnaminga. There are numerous reefs, for the most part similar in character, consisting of a loose kind of quartz, occasionally mixed with ironstone, whilst here and there the ironstone predominates. In order to give some idea of the productiveness of the reefs, a report was prepared in September last year for the Government Geologist, showing, as nearly as could be arrived at, the quantity of gold obtained up to that time. In most cases the actual weight of stone treated is given with the return of gold therefrom, but in a few instances the amount of gold is given. Two hundredweight of stone from the Victoria Tower claim returned 60ozs. of fine gold; 15cwts. from the same gave 128ozs. 12dwts. 10grs.; 5cwts. from the Birthday (now called the Milo) claim gave 6ozs.; 1 ton from the Earl of Jersey claim returned 83ozs.; and 20 tons from the Virginia gave 80ozs.—the grand total of twenty-three parcels varying from 2cwts. 20 tons, being 787ozs. 4dwts. 10grs. of fine gold. At the same time the quantity of stone at grass was estimated at 1,870 tons, which, on subsequent treatment, gave an average return of over 3ozs. of gold per ton. Since then about 2,500 tons have been raised on the various claims, but the monthly output is steadily increasing, the average produce being very little less. The quality of the gold from Wadnaminga is very high, all that has been disposed of having realised from £3 12s. to £4 per ounce.*

Other parcels of gold quartz have been assayed in Melbourne, with splendid results. One ton of ore from the Countess of Jersey Mine yielded 16ozs. and another ton 400ozs. These facts indicate the richness of the field. Its extent is also remarkable. It is stated that it stretches about fourteen miles from east to west, and about five miles from north to south. This gives an area of nearly 50,000 acres, over which gold reefs are abundant. In some of the mines machinery has already been erected, and in others machinery has been procured which will be set to work as soon as it can be placed in position after reaching the ground. The general outlook of all the mines in the district is good, and there is every prospect that before long these mines will add largely to the general prosperity of the colony. Mining in the Wadnaminga mines is being conducted according to the experience gained in the sister colony, and, when their richness and extent have been substantially proved, other gold districts which have been neglected are certain to receive more notice than they have hitherto obtained.

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* *S.A. Advertiser*, September 12th, 1892.

About two years ago extensive deposits of mineral earths suitable for the manufacture of paint of various colors were found at Noarlunga, about twenty-two miles south of Adelaide. The deposits are rich and easily worked, and have been manufactured into paint of excellent quality.

More recently a limestone resembling the blue lias limestone of Great Britain has been discovered in large quantity in the neighborhood of Brighton, about ten miles south of the metropolis. This is used for making cement. The article produced is claimed to be of splendid quality, superior to anything that can be imported from Europe, and to bear a strain equal to more than 900lbs. to the square inch, which is above one-third greater than that which the best cement is required to bear in England. The open channel in the extensive waterworks now being constructed by the Government at Happy Valley, about fifteen miles south-east of Adelaide, will probably be made of concrete of which this cement will form the basis. The cement which is made from the colonial material, besides being alleged to be better in quality than the imported article, it is said can be produced at a much cheaper rate.

In treating of the mines of South Australia it may be proper to give some account of the Broken Hill mines, which, as far as is at present known, constitute the largest silver mines in the world. They are situated in New South Wales, about sixteen miles east of the boundary of South Australia, in the district known as the Barrier Ranges. Although the mines—for the extensive silver fields include very many—are outside the boundary of this colony, the whole of the trade to and from the silver fields passes through South Australia, and the produce of the mines is shipped from her ports. More than half of the shares in the Broken Hill Proprietary Mine are owned in South Australia, as well as a very large proportion of the shares in other mines which are held under the original leases from the New South Wales Government.

As soon as the importance of the mineral discoveries at Broken Hill became known the Government of South Australia set to work to extend her railway system to the New South Wales frontier, in order to secure the traffic. The Broken Hill railway started from Petersburg on the Great Northern line, and extended north-east for about 145 miles to the township of Cockburn on the border. From this point a line constructed by the Silverton Tramway Company extends from Cockburn north-east to Silverton, and thence south-east to Broken Hill. This line is about forty-five miles long. The line from Petersburg runs west and south to Port Pirie, a distance of about seventy miles; so that communication with the seaboard of South Australia is secured from Broken Hill to Port Pirie at 250 miles, which is less than one-third of the distance between the mines and the eastern ports of New South Wales.

"The Broken Hill silver fields were discovered towards the end of September, 1883, by Charles Rasp, an employé on the Mount Gipps run, whilst mustering sheep in the Broken Hill paddock, in the neighborhood of the since-formed township of Silverton. He was much struck with the mineral appearance and formation of Broken Hill. In conjunction with Messrs. Poole & James, contractors on the run, Rasp pegged off and applied for the first block (now lease 12) on the Broken Hill. Rasp mentioned the matter to Mr. McCulloch, manager and part owner of the Mount Gipps run, intimating that he believed the bluff at the end of the hill to be a mass of tin. McCulloch and Rasp then immediately pegged off blocks (now leases 13, 14, and 15), which take in the whole of the Broken Hill itself, the aboriginal name of which is Wilyu-Wilyu-Yong. These blocks were applied for in the names of G. McCulloch, G. Urquhart, and G. A. M. Lind, the two latter being respectively overseer and storekeeper on the Mount Gipps run. Two more blocks were applied for (leases 10 and 11) south of No. 12, and one to the north of 15 (now lease 16), and thus seven blocks, being nearly two miles in length, were secured on the line of reef. The interest in the seven blocks was then amalgamated into one private company or syndicate, under the name of the Broken Hill Mining Company. . . . . . After a little surface prospecting had been done, exposing large bodies of comparatively lower grade carbonate of lead ore, and, not knowing or not having tested the richer iron and kaolin surface ores, two of the original proprietors sold out of the concern. The company was then re-formed into one made up of fourteen shares. Towards the end of 1884 the existence of chlorides was first noticed. This gave an impetus to prospecting, and shortly afterwards chlorides were found on the surface in the iron ore. . . . . . The rich surface kaolin ore was accidently dropped across by an aboriginal in the employ of the manager of the mine. Since the beginning of 1885 the prosperous advance of the company was most satisfactory, without check or hindrance, and perhaps unparalleled in this respect in the mining history of the colonies. . . . . . The 'Broken Hill Mining Company' was floated into the 'Broken Hill Proprietary Company, Ld.'* in August, 1885."

Mr. Purvis in the same report furnishes the following statement of the physical aspect and geology of the mines: —"The Broken Hill vein is a large fissure vein, extending with interruptions . . . for a distance of nine miles. It is most prominent in the Broken Hill Proprietary Company's claims, where it stands out conspicuously on the crest of the hill, extending from block 10 on the south-west to the middle of block 15 in the north-east. Beyond this point to the north it becomes broken into

* Appendix to directors' report, 1886.

smaller branches, and takes a different course. These branches, however, reunite in places, forming bold bluffs or blows of rock usually consisting of ironstone or quartzite. Throughout the Proprietary Company's claim the outcrop of this vein is very remarkable, standing out in several places 20ft. to 40ft. above the hill in the form of rugged black rocks. This outcrop mainly consists of an ironstone (locally termed) of varying hardness, and with a variable proportion of silica. On blocks 10 and 11 this ironstone is very hard and compact. It is really what is known as black hematite, and contains a very large percentage of manganese. On the western side of the hill the country is somewhat undulating, but on the eastern side the hill rises abruptly from the plain. The country rock is schist whose planes of cleavage are parallel with the vein. On the west side are two distinct dykes of quartzite traversing the hill in a parallel direction with the vein. In the south-east portion of No. 10 one of these dykes runs close with the vein, following the same course. At a short distance the vein splits up into branches, running more to the east, and the quartzite continues in the course of the vein. The underlay or dip cannot yet be accurately ascertained, inasmuch as it varies considerably. In the north shaft it dips to the east; in Rasp's shaft to the west; and as far as the 210ft. level in McCulloch's shaft to the west: but 20ft. below this level it forms a curve, and dips toward the east at the 316ft. level. The angle of inclination is as yet very little, being only seven degrees from the vertical at the 216ft. level. The vein presents many geological and mineralogical features of great interest. Apparently the ironstone, or iron ore, was the primary constituent of the vein, and boulders of country rock have also fallen into the fissure. At a subsequent period the carbonate of lead was deposited, and the kaolin, and still more recently the chloride of silver. These carbonates and chlorides are probably the result of the decomposition of other lead and silver ores, and a change in the nature of the ores may be expected at a lower depth."

The mineralogy of the mine is thus described:—"The principal mineral constituents of the vein are oxides of manganese, iron, and carbonate of lead and kaolin (resulting from the decomposition of the felspar in the enclosing rocks). In connection with these minerals the silver occurs almost entirely as chloride, chloro-bromide, and less commonly iodide, either in the form of thin plates or seams or (more frequently) in small crystals in the cavities between the seams in the vein. It has also been found in rounded nodules and cellular masses. Manganese occurs in the mineral psilomelane, which forms the massive black 'iron ore' outcrop. It is also found abundantly in the vein in reniform, botryoidal, and stalactitic varieties. Iron is distributed throughout the vein in various forms. It is found as an earthy oxide, mixed

with carbonate of lead and silica. Impure varieties of spathic and specular iron also occur. Lead is one of the most abundant constituents of the vein, in the form of cerussite or carbonate of lead. It is particularly plentiful in the north-east working. Galena occurs also in very small quantities in the bottom of the north shaft. Red oxide (cuprite) and green carbonate (malachite) of copper have been found in the stopes at Rasp's shaft and also in the No. 1 tunnel. Both these ores are highly argentiferous here. Silver is generally distributed throughout the vein. The silver ores already found are kerargyrite, or chloride of silver; embolite, or chloro-bromide; and, less commonly, iodyrite or iodide of silver. Native silver has been found in connection with cuprite in the stopes at Rasp's shaft, and partially decomposed sulphides of silver at the water level in McCulloch's shaft. Many other minerals have been found to occur, among which may be mentioned pyromaphite or phosphate of lead, atacamite or chloride of copper, chrysocolle or silicate of copper, garnet felspar, quartz, and mica."

The company has extensive smelting works at Broken Hill, and are about to have others at Port Pirie, so as to enable them to work up the low-class ores at a profit. The financial results of the Broken Hill mines have surpassed anything heretofore known in the annals of mining. The dividends paid since July, 1886, to December, 1892, have amounted to £4,552,000.

About two years ago the discovery of a coalfield at Leigh's Creek was announced. The distance from Adelaide by railway measurement is given as 373¼ miles N., and from Port Augusta 164 miles N. and by E. In 1891 Mr. H. Y. L. Brown, F.G.S., Government Geologist, reported upon the discovery, and from his report some extracts are given, which indicate the nature and extent of the deposit, to which considerable importance has been attached by the proprietors of the field.

After describing the primary rocks which exist in the surrounding country Mr. Brown observes that "The secondary rocks, which contain the coal-bearing shales of Leigh's Creek, appear to occupy deep basins, which have been eroded in the softer parts of the older rocks, and which at one time formed a chain of lakes of various sizes and irregular shapes, extending northwards towards the region of Lake Eyre. These lake depressions were formed after the upheaval of the primary strata into their present position with regard to one another, although there is evidence that there has been a gradual sinking of the whole of the rocks since the deposition of the shale deposit which now fills these lake depressions. The fossils are of a character indicating vegetable and animal life of a kind which could have existed only in fresh water. To allow of these lakes containing fresh water at that time it was necessary

that they should have outlets to the sea, or to some larger lake further northward, otherwise their waters would have become salt. They must therefore have been above the sea level. At present the depth attained by the diamond drill is 1,800ft., which is over 1,000ft. below sea level. The surface of the country and the surrounding mountain ranges must therefore have been elevated more than 1,000ft., and probably to a much greater height, above the present level. This greater altitude, and consequent increased moisture of the atmosphere, would account for the then different vegetation. The general elevation of the surface of the flat country at Leigh's Creek, according to the railway measurements, is 777ft., and it falls gradually going northwards, being at Farina—a distance of thirty-five miles—300ft., and at Hergott—a distance of sixty-eight miles—152ft. above sea level.

"The upper rock of mesozoic or secondary age at Leigh's Creek are in descending order:—1st, quartzite and sandstone; 2nd, argillaceous sandstode on conglomerate. At the Cutaway Hills, near to the Leigh's Creek railway station, these rocks form cappings, more or less horizontally disposed on the primary claystones and slates. There are two exposures of these rocks: the elevation of the higher is about 200ft., and of the lower 170ft. above the plain. They form escarpments on nearly all sides, and the greatest thickness is about 150ft. Fifty feet of this is quartzite, 50ft. sandstone, and the remainder argillaceous sandstone and pebble conglomerate, chiefly quartz. The thickness of the beds varies greatly, even in the small area covered by them. Both the quartzite and sandstone show impressions or casts of large strap-like leaves of plants, and smaller reed-like markings, which have proved too indefinite for identification by a palæontologist. The rocks are, however, lithologically and in position very similar to those at Mount Babbage and Mount Adams, at which places I found fossil plant remains a few years ago, which were examined by Dr. H. Woodward, of the British Museum, who published notes concerning them in the *Geological Magazine* of July, 1885. The conclusion he arrived at was that they were probably of the lower cretaceous age. At three or four different places to the southward of the Cutaway Hills, on the plain beneath and in the vicinity of the present bore, there are small outcrops of quartzite and sandstone, which I take to be outlying patches of the same rocks.

"Resting on the carbonaceous shale, the slates, and other primary rocks in horizontal beds, and forming tablehills and tablelands with high escarpments, there is a thin but widely spread formation, composed of boulder gravel and shingle, in some places unconsolidated, at others mixed with soft gypsum and limestone, and again as a hard limestone conglomerate which covers a large portion of the area. The boulders constituting this

deposit consist of quartzite, sandstone, slate, limestone, dolomite, quartz, &c. Underlying this there are often white kaolin and sandstone beds, with gypsum mottled clays and ironstone. In some places this boulder drift and conglomerate is replaced by a thin bed of yellow jasper rock and flinty quartzite which caps the tablehills in the same manner. This rock becomes more common to the northward towards the edge of the main range, where it overlies the gypseous clays, kaolin, and sandstone of the marine cretaceous rocks or artesian water formation. This rock formation, which has since proved to be coal-bearing shale, was first found during the excavation of the Government dam about half a mile south-west of Leigh's Creek railway siding. It outcrops at various places along the course of Leigh's Creek for some twelve miles north, and has been exposed in wells at various places along that creek.

"The first basin occupied by the shale formation is that in the neighborhood of the railway siding and township. It is almost entirely surrounded by primary rocks, and has only a narrow outlet to the north. Its length is about two miles, and the width varies from one and a half to two miles. At the Government dam carbonaceous shale was found, and in a shaft sunk to the depth of about 70ft. near to the same place thin seams of coal were passed through. This shaft was abandoned on account of the influx of water. On the western side blue and variegated clays, with ferruginous claystone bands, dip eastwards at an angle from 20° to 30° off sandstone and calcareous slates of primary age. These clays are the decomposed outcrops of the carbonaceous shale, and the ferruginous claystones are interstratified with the shale.

"The second basin lies to the northward of that just mentioned, and is much larger than the last described, widening out or narrowing according as it is restricted by the outcrop of the older rocks. The bores sunk by the Government are in this basin. There the geology of the shale formation can best be studied by means of the natural outcrops of the rock, and by the records of the diamond drill bores which have been sunk. The surface of the basin is a plain which runs through Leigh's Creek, which forms wide flats at a slightly lower elevation. The surface of the higher plain is strewn with more or less water-worn boulders, gravel, and shingle, which have resulted from the denudation of the limestone conglomerate which rests horizontally with gypsums and calcareous clays on the superincumbent rocks. These consist of blue clay and shale interstratified with numerous bands of brown iron ore, clay, ironstone, and sandstone, which constitute the outcropping portions of the Leigh's Creek carbonaceous shale formation. These ferruginous bands are generally very peculiar in position, extending in long more or less parallel lines and dipping at various angles from 10° to 15° and 30°

to 40° towards the centre of the basin. Twenty or thirty of these parallel outcrops may be discerned in passing over a few acres of ground. The lines of outcrops are often continuous for a considerable distance; sometimes they thin out to nothing, and at other times their outcrop is marked by a disconnected line of circular ironstone mounds. In structure they are also peculiar, the beds being composed of large and small irregular lenticular and globular concentric masses of brown oxide of iron and clay ironstone, having cavities in the centre containing oxide of iron (red and yellow ochre) in a finely-divided state. Elsewhere they consist of claystone and clay ironstone, and sometimes, but rarely, of sandstone. In thickness they vary from that of a sheet of paper to 2ft. or 3ft. In the southern part of the basin they dip at a high angle (35° to 40°) off cleared clay slates and strike W.S.W. and E. and W. On the eastern portion of Leigh's Creek they dip at angles from 5° to 20°; on the northern portion at angles of 25° to 30° off calcareous flags of limestone.

"In the southern portion there is what appears to be the outcrop of a coal seam about 3ft. thick dipping northward towards the diamond drill bore at an angle of 15° to 20°. This outcrop is much mixed with gypsum and earthy matter, but may be the outcrop of the seam passed through at 1,500ft. in the bore. If it is the same seam, and continues without faults, then there is a thickness of 500ft. of shale below the coal seam to be passed through before the primary rocks will be met with in the bore. Two diamond drill bores have been sunk. No. 1 bore was sunk to a depth of about 170ft. in the shale, which, with the seams of coal here, dip S.E. and towards No. 2 bore, at an angle of 10° to 15°. The distance between the bores is about one and a quarter miles. In neither bore have the bands of oxidised iron been met with; but in each numerous bands of fine-grained argillaceous (sometimes calcareous) sandstone have been passed through at intervals in the shale, which probably represent them. The decomposition of these near the surface has doubtless caused the formation of beds of claystone and brown iron ore. On the surface, along the outcrop of iron oxide and clay ironstone, numerous casts of freshwater mussels, composed of oxide of iron, have been found. The same fossil, composed of iron pyrites, has also been found at No. 1 bore in the shaft since sunk. A cast of what may have been a univalve shell was also found at the same place. In No. 2 bore fossils of the same genus, with portions of the shell adhering, have been met with in boring at intervals down to a depth of some 1,700ft. or more. Numerous impressions of plants, chiefly ferns, occur in the shale in both bores down to nearly the lowest depth yet reached. Some of these were fairly well preserved, and have been identified by Mr. Etheridge, who

has written the accompanying valuable paper on the subject from specimens supplied by me. Similar leaf remains have also been obtained from the shale in shallow excavations at several other places in the neighborhood.

"The shale raised from the bores is found to contain a considerable percentage of carbonaceous and bituminous matter. It varies in color from a light slate to black, and when placed in a fire often emits a considerable quantity of inflammable gas, which leaves a solid white ash. When heated in a retort, gas, water, tar, and oil are produced. The shale when seen at its junction with the primary rocks dips, as previously mentioned, off them towards the centre of the basin unconformably at various angles from 10° and 20° to 40°. Originally it must have been deposited horizontally in the still water of the lake, and the present dip of the beds therefore points to a subsidence of the central portion of the basin, which may have been caused by a sinking of the primary rocks underlying it at the time of the deposition of the formation, or by the shrinking or settling down of the beds through their becoming more consolidated, or through some other change taking place below. In the cores raised there are often evidences of faults or joints in the shale, caused by a fracture of the mass, and the sliding of one side up or down against the other, resulting from such movements of the strata. Faults of this kind doubtless account for some of the numerous parallel outcrops of the ferruginous bands, all dipping in the same direction, which appear in some parts of the basin. The stratification of the shale in the No. 2 bore in its deeper parts is sometimes distinctly horizontal; at others, judging by the layers of leaf impressions, at an angle from 20° to 40°, but as a rule there are no lines of stratification visible. A high percentage of carbonaceous and bituminous matter has been noticed in the shale of No. 2 bore for a considerable depth, some of the core containing as much as 30 and 40 per cent. An analysis by Mr. Cosmo Newberry, C.M.G., shows that free petroleum is also present in it. This points to the fact of the shale having absorbed petroleum from some source or other, and indicates the probability of petroleum being met with in larger quantities below. Whether it will pay to extract from the shale, oil, tar, and other products developed by heat during the process of distillation is a question which will have to be settled by future experiment under the conditions of cheap fuel and an economical process.

"Northward of the second shale basin the primary rocks again approach the surface and form islands rising out of the plain, the valley of Leigh's Creek becoming contracted for some distance, and again widening out into plains in the neighborhood of Lyndhurst Siding, and

eastward and westward of that place. Although this is the case, these plains are occupied at intervals by the primary slates, sandstones, quartzites, limestones, &c., which are often observed to form the bases of the flat-topped hills and escarpments of the tablelands. North of Sunday Creek, near the railway cottages, the shale comes to the surface, as also do the bands of ironstone, and at one place a band of carbonaceous matter with gypsum and brown iron ore, and the outcrop of a coal seam from 1ft. to 2ft. thick, are visible. From the great thickness of the Leigh's Creek shale formation it is to be expected that it will be found to extend northwards towards and under the great central plain. The coal-bearing shale on the eastern side of Lake Eyre may represent the same formation. This point, however, is one which will have to be determined by future fossil evidence. On the Frome, south of Mundowdna station, and at Attraction Hill, near Hergott, there are ironstone and conglomerate beds which bear a great resemblance to some of the ferruginous bands of the Leigh's Creek basins, and may be their representatives. What portions of the marine cretaceous series of the great plain to the north is underlaid by these freshwater coal-bearing shales it is impossible to say until a thorough examination has been made of the country in the neighborhood of the outcrops of primary rocks bounding them, or until bores have been sunk, as suggested in my annual report, 1883. . . . .

"Besides this seam of coal in No. 1 bore the carbonaceous shale from 125ft. to 135ft. above the seam, and from 137ft to 142ft. below it, contained thin layers of coal and coaly matter interstratified with it. The coal here resembles lignite and brown coal, and is softer and more easily broken up on drying than that found in No. 2 bore. This may be due to its proximity to the surface, and the consequent lessened pressure it has undergone. According to the analyses it is a hydrous coal of a similar class to that in No. 2 bore, so that I see no reason why the two seams may not be connected and be parts of the same bed. The great depth of the basin in comparison with its area, and the fact of the shale beds dipping towards its centre, in my opinion render it probable that the coal beds will be irregular in thickness, and have a cake-like form, attaining the greatest thickness in the deepest ground. In No. 2 bore, from near the surface to a depth of 1,496ft. 8in., the drill passed through shale, with silicious and calcareous bands, containing a varying percentage of carbonaceous and bituminous matter. At 1,496ft. 8in. a bed of coal was met with, which continued down to 1,544ft. 6in., at which depth the drill again passed into carbonaceous shale. This has continued with occasional thin seams of coal and coal shale (or coal containing a large percentage of ash) to the present depth of 1,800ft. At from 1,764ft.

to 1,774ft. the occurrence of this coal and coal shale was most noticeable. The total thickness of the main seam of coal proved to be 47ft. 10in."

Several samples of the coal have been analysed by Mr. Goyder, Government Analyst, and have given highly favorable results. Mr. Cosmo Newbery, C.M.G., has also specially reported upon samples submitted to him for examination. He states:—

"In many of its characteristics this coal differs from the bituminous coals of Great Britain, New South Wales, and Victoria, and in some respects resembles the most dense brown coal of Europe. Possibly it is an intermediate body, having some of the characteristics of both the brown coal and the true bituminous coal. Like a brown coal it is partly soluble in caustic potash, has no tendency to cake, and leaves no cinder after burning. The ash is only from 2·4 to 3·9 per cent., and is a fine white powder. On the other hand, it burns like a true coal, and the products of combustion and distillation are those of true coal. The amount of absorbed water—18 to 20 per cent.—is more like the property of a brown coal. None of the true coals absorb water to this extent. But taking all its characters and properties I think it should be classed as a bituminous coal and not as a brown coal. All the drill cores given to me were made of irregular-shaped fragments of two varieties—one a bright black coal and the other a dull black with a shade of brown, and with a slate or shale-like texture. The composition of both was almost identical in the first samples submitted, but in the las the ash in the drill portions rose to 30 per cent. and over, while the bright jet-like parts had not altered. Probably the bore is passing out of the best portion of the seam. The coal does not take the fire easily, but when lighted it burns well, and will be an excellent fuel for steam and domestic purposes; but owing to the absence of cinder and the small powdery ash it will not be burnt with economy on ordinary firebars, as all the small fragments of unconsumed coal would fall through into the ashpit and be wasted. Mr. J. J. Woolgar, Melbourne, has designed bars for burning our brown coal, which I think would burn this coal with great economy for either stationary or locomotive engines. Mr. Meekesen, the Inspecting Engineer of our Department of Mines, is now reporting on these bars, and I would suggest that you should obtain a copy of his report. Mr. H. Y. L. Brown saw them in use with brown coal on his recent visit here. I find that the coal when exposed to a perfectly dry atmosphere for less than twenty-four hours loses almost all its absorbed water, and I think it does so without becoming much more friable. This is a very important point, and I would suggest that some further tests should be made, as it would of course greatly increase the fuel value if the water can be easily evaporated and the coal not rendered brittle. The water determinations were made

at a temperature of 100° C., and are not quite correct where the ash is high, as the kaolin of which it is composed would not give up its combined water at that temperature. The first sample brought by Mr. Brown gave:—Water, 18·80; hydro-carbons, 24·95; fixed carbon, 52·90; ash, 3·35=100·00. A portion of the bright jet-like part of the above gave:—Water and hydro-carbons, 43·15; fixed carbons, 54·45; ash, 2·40=100·00. The later samples, after the drill had passed through over 20ft., gave:—Water, 12·30; hydro-carbons, 17·15; fixed carbon, 41·00; ash, 29·55=100·00. Bright black coal separated from the above:—Water, 23·20; hydro-carbons, 19·90; fixed carbon, 52·95; ash, 3·95=100·00. When exposed to a dry atmosphere the first sample lost its water, and gave a result equal to—Water, nil; hydro-carbons, 30·73; fixed carbon, 65·14; ash, 4·12=100·00. This represents a fuel of very high value, but further experiments should, as before stated, be carried out to ascertain to what extent the drying renders the coal friable."

The conditions under which this coal deposit exists being unusual, it has been deemed advisable to record its description and characteristics as fully as possible, and also because of the immense importance of the discovery to the future of the colony if the coal should prove to be of a generally serviceable kind and obtainable in sufficient quantities for general use. The Government Geologist has recently made a fresh examination of the coalfield and of the explorations which have been carried on there. It confirms his previous report, and indicates a larger deposit of the mineral found there than had been previously announced. Other reports (unofficial) recently made public claim a discovery of true coal in places where the Government Geologist suggested new borings. Some trials of the Leigh's Creek coal were made in the Locomotive Department of the South Australian railways, in order to ascertain how far the mineral was suitable for the general working of the railway traffic. It was found that it was not as well adapted to railway purposes as the New South Wales coal, which is at present in use on the Government railway lines.

Reference has been made in preceding pages to the great mineral wealth of South Australia, and to the number and variety of the minerals which are found within its limits. It is only during the last few years that their nature and extent have become known with much accuracy. A list of minerals was published in the *Royal South Australian Almanack* for 1841, which was compiled by the late Dr. Menge; a catalogue of South Australian minerals, by T. C. Cloud, Esq., of the Wallaroo and Moonta mines, appeared in the Transactions of the Royal Society of South Australia of 1882-3; and a catalogue of minerals and localities, compiled by Mr. G. A. Goyder, was issued in 1883 by the Crown Lands Department.

Since then a great development has taken place in mineral discoveries in the colony. *Recently another "Catalogue of South Australian minerals, with the mines and localities where found, and brief remarks on the mode of occurrence of some of the principal metals and ores," has been prepared, under the authority of the Commissioner of Crown Lands, by Mr. H. Y. L. Brown, Government Geologist. The author states that the "publication does not pretend to be complete, as there are probably mineral collections in the possession of private persons which have not been available." It is a useful pamphlet, and, subject to this qualification, the catalogue may be regarded as including all that is known upon the subject up to the date of its compilation.

* Published early in the present year.

CHAPTER XVIII.

Suitability of the Australian Climate to the Breeding of Sheep and Cattle —Importance of the Pastoral Interest in the Early Days—Sheep Brought from Van Dieman's Land—Number of Sheep in 1841—Mr. Inman—Sheep from Cape of Good Hope—Rapid Increase of Flocks—Statistics—Sheep-farming by the First Settlers—Their Difficulties —Grazing Licences—Pastoral Leases—Land Resumed for Agricultural Use—Position of the Squatters—Their Difficulties—Assessments in Stock—Security of Tenure—Report of the Surveyor-General—Payments for Improvements—New Legislation—Liability of the Colony for Improvements—The Rabbit Pest—Area of Land Depastured —Rabbit-proof Fences—The Merino Sheep—The Fleece Improved by Australian Climate—Other Breeds of Sheep—Price of Mutton— Diseases of Sheep—Production of Wool—Export Price of Wool in London—Countries to which Exported—Value of Exports—Cattle Breeding—Statistics of Increase—Quality of South Australian Cattle —Market Prices of Sheep and Cattle—Horse-breeding—Introduction of Arab Stock into New South Wales—The Australian Bred Horse— His Endurance—Drought Stock—Mules—Camels—Health Precautions Relating to Flocks and Herds—Legislation Thereon—Extermination of Scab in South Australia—Other Diseases of Cattle—Laws Respecting Them—Healthy Condition of Stock in South Australia.

The suitability of the climate and the natural vegetation of Australia to the breeding of cattle and sheep had been demonstrated in New South Wales many years before South Australia was founded. Very early in the history of the new settlement, sheep-breeding was commenced, and for a long period the pastoral interest was the paramount interest of the province. The first sheep brought into the colony were landed by Governor Hindmarsh, but most of them were lost. In February, 1837, Mr. J. B. Hack introduced between 300 and 400 sheep, half a dozen heifers, and a Devon bull, and a short time afterwards some cows were landed from the Cape of Good Hope. Messrs. Hallett and Malcolm brought sheep over from Van Diemen's Land. In 1838, thirty-seven vessels laden with stock arrived in the colony, and in 1839 fifty vessels brought stock, principally sheep. They also brought a few horses. Captain Hart brought 400 head of cattle from Portland Bay, and the remainder of the drove, about 400, were driven overland. They were the first lot of cattle introduced from Port Philip, as it was then called. They were the first that travelled by Major Mitchell's track, through Victoria to Portland, from Manoora, in New South Wales. The first wool dispatched to England was sent in the *Goshawk*, which took ten months to make the voyage. In the Statistical Register (1890) it is recorded that as early

as 1838 there were 28,000 sheep in the colony. In 1841 Mr. Inman, who was in charge of a flock of 7,000 sent from the Port Philip district, was attacked by a tribe of blacks near the N.W. Bend of the Murray, and deprived by them of all his stock. Some were introduced from the Cape of Good Hope, and the South Australian Company imported valuable stud stock from Europe. In 1839 the number of sheep in the colony is recorded as amounting to 108,700, and at the end of 1840 to 200,160. Since that time, although there have been considerable fluctuations in the number of sheep depastured in the colony, in the year 1890-91 the total amounted to 7,004,642. The statistics which are given below show the number of sheep in the province at the end of five-yearly periods from 1836 to 1890, and the value of the wool exported during the same periods:—

Five years ending in	No. of Sheep.	Value of Wool Exported.
		£
1840	200,160	9,860
1845	480,669	218,453
1850	984,199	501,492
1855	1,768,724	966,083
1860	2,824,811	2,395.972
1865	3,779,308	3.571.236
1870	4,400,655	5.126.163
1875	6,179,395	8,032,531
1880	6,453,222	9,803,329
1885	6,696,406	8,398,132
1890	7,004,642	9,145.484
	Value........	£48,168,735

The number of sheep in the colony in 1891 was 7,646,239, and the value of the wool exported, £2,166,125; and in 1892 there were 7,152,047 sheep, and the value of the wool exported, £1,954,405. This brings the value of the wool exports to the end of the latter year up to a total of £52,289,263.

In the early days of pastoral settlement the sheep stations were close to the city of Adelaide. By degrees, as the land was required for agricultural purposes, stockowners were compelled to move their flocks further and further away from the capital. There was very little hardship in this, because the land for two or three hundred miles was excellent for grazing. It was well watered, and there was no difficulty in bringing the wool in for shipment. Sheepowners were prosperous in those days. The flocks increased rapidly, and the number of sheep seems to have been doubled at the end of every five years down to 1855, after which progress was somewhat more slow. Sheep-farming, however,

was not without its drawbacks. The natives were sometimes troublesome; wild dogs did much mischief; bush fires were occasionally very destructive; and the disease called scab, for a long time the scourge of the Australian sheepowner, often heavily discounted the returns upon which he depended to repay him for his outlay. The measures which were adopted in order to stamp out that disease have been so effectual that no case of scab has occurred in the colony for very many years.

Prior to 1851 grazing rights on the waste lands of the Crown were let by licence. Those rights were first limited to the holders of purchased land, who were entitled to depasture two square miles of country in virtue of every eighty acres held by them. Grazing rights under the licensing system were gradually extended until the year 1851, when Royal Orders in Council, passed at Buckingham Palace in 1850, which authorised the leasing of the waste lands of the Crown for depasturing purposes, came into force. Under those orders the rent for land of the first quality was fixed at £1 per square mile, for land of the second quality at 15s. per square mile, and for land of the third quality at 10s. per square mile. The lands held under these leases could be resumed if required for agricultural purposes at six months' notice. At first the squatters who received notices of resumption were able to move their sheep further back into the bush; but later, as good land became more scarce the pastoralists, who were unable to find suitable runs within reasonable distances, were forced either to sacrifice their stock or purchase as much of the fee-simple of the country they held under lease as they were able to do. The latter course was followed in many cases, and some of the sheepowners became possessed of magnificent estates in the best parts of the country. Runs which were not immediately required for agricultural settlement were put up for sale in order to provide revenue, when the exigencies of the colony offered no readier means of filling the public coffers than by the sale of land occupied by pastoralists.

The squatters, prosperous as they have been, were not in a position to meet the demands upon them for the purchase of the lands they occupied. Land bought at the land sales at the fall of the hammer had to be paid for in cash. The banks were resorted to to furnish the necessary funds, and some of the now wealthy squatters were in the hands of those institutions, and struggled on for years before they became free. At one period the directors of the banks in England became alarmed at the magnitude of the advances which had been made to stockowners, and local managers were pressed from home to close many of the large accounts which were outstanding. This policy could not be followed out. It would have brought about wholesale ruin. Time was wanted to allow

the pastoralists to fulfil their obligations, and that having been secured the pressing difficulties of the situation were solved. The banks lost nothing—indeed they were large gainers. The struggling squatters of those days are now amongst the most wealthy of the colonists.

After a few years had elapsed since the issue of the first leases it was considered that the rent paid by the lessees was too low. An assessment was made on the sheep and cattle depastured on the Crown lands of 1d. to 2d. per head for sheep and 6d. to 1s. per head for great cattle. The country in the outlying districts was leased for fourteen years at a rental of 2s. 6d. per square mile, with an assessment of 1d. per head for sheep and 1s. per head for cattle. At the end of the fourteen years the assessment was doubled during the extension of the leases for a second term of fourteen years, at the end of which all the improvements made on the runs became vested absolutely in the Crown, without any compensation to the lessees. That arrangement gave rise to much dissatisfaction among the leaseholders. Further legislation altered the state of affairs. The tenure was extended and at the expiry of the leases the Government took over all the improvements, paying for them in full after a fair valuation. The Crown lessees were not only dissatisfied with this, but they complained of the insecurity of the tenure under which the leases were held. On this subject the Surveyor-General reported as follows:*—"It is not necessary that the various Acts under which these leases have been dealt with should be enumerated, but, as it has been urged that insecurity of tenure has militated against the more successful occupation of lands leased for pastoral purposes, I may be permitted to state that lands leased in 1851 with the conditions that all improvements should be given up to the State at the end of the term (fourteen years), when the lands were to be relet by auction, were, until the end of 1888, when they expired by effluxion of time (as above stated), still in the hands of the same lessees or their assigns, when the lessees received by the various concessions granted during the thirty-seven years that elapsed from the date of the first leases in 1851 payment in full for water improvements and *pro rata* according to the date of resumption for others, comprising a sum equal to about a third of the entire rentals paid to the Government during the period specified." The amount received by the Government on account of rents of pastoral leases from the end of June, 1851, came to £1,889,035, so that according to the statement of the Surveyor-General the payments for improvements have amounted to about £629,000. The actual receipts of the Government on account of land occupied for pastoral purposes including commonage licences from 1843 to June, 1892, appears to be £2,181,118. The policy of paying the pastoral lessees for the value of

* Parliamentary Paper, No. 6 of 1890.

the improvements made on the runs at the expiration of the lease has not proved to be as satisfactory as had been expected. A measure is now before Parliament which proposes to alter existing arrangements, and to leave the question of payment of improvements to be arranged between the outgoing and the incoming tenants when leases expire, and the land is leased anew. This plan is in force in New South Wales, where it seems to operate in a satisfactory manner. According to the Surveyor-General's report, the liability of the colony to pastoral lessees will amount at the end of 1907, when a number of existing leases fall in, to £2,500,000.

Although in former years sheep and cattle raising, but especially the former, were highly profitable pursuits, stations cannot now be carried on under the favorable conditions which generally prevailed in the early days of the colony. Agricultural settlement has driven the squatter far back into the bush, where the country is of inferior quality, the rainfall light and precarious, and where the growth of vegetation in abundance is seldom certain. Added to these drawbacks, the swarms of rabbits which infest some parts of the country materially diminish the supply of feed on which the stockholder can depend. Very large sums of money have been expended both by the Government and the pastoral lessees in endeavoring to clear the land of vermin, but all efforts up to the present time have not succeeded in eradicating the nuisance. The area of land leased for depasturing purposes in 1892 was 153,429 square miles or 98,194,560 acres, so that the difficulty of exterminating vermin scattered over such an enormous tract of country may be imagined. Drought has in many instances materially decreased the rabbit pest, but the season which leaves rabbits without food leaves the sheep in a similar condition; still considerable relief has been experienced in some places from this cause. Within a few years the experiment has been tried of isolating stations by means of rabbit-proof fences, and where tracts of country are protected from incursions by the vermin living outside their numbers can be considerably reduced. A rabbit-proof wire fence has been constructed at a large expense on the frontier line between South Australia and Victoria, though how far that expedient has been efficacious in diminishing the trouble on either side of the border is not known with much approach to certainty.

The flocks in this colony consist almost entirely of Merino sheep, although some other kinds are bred in a few places. The Merino, it has been generally thought, was first introduced into New South Wales by Captain J. McArthur, in 1797. This, however, is incorrect. The gentleman to whom the credit really belongs was a Captain Waterhouse, who came to New South Wales in H.M.S. *Sirius*, the flagship of the first fleet that brought prisoners to Botany Bay. That ship was wrecked at

Norfolk Island in 1790, and Waterhons, and that having been secured he was sent by the Governne situation were solved. The banks lost to purchase stock for the large gainers. The struggling squatters of Colonel Gordon, who w[illegible]t the most wealt[illegible] the colonists. and his property was put[illegible]apsed sale. A portion of it included a flock of pure-bred Spanish Merinos, most of which were bought by Waterhouse and brought on to New South Wales. Here he offered them to the Governor, who declined to purchase them, being apparently satisfied with the fact that they were in the colony. When Captain Waterhouse left New South Wales he sold his flock to Mr. Cox, the paymaster, with the exception of a few sheep, which he disposed of to Captain McArthur. The foregoing facts are taken from an autograph letter by Captain Waterhouse, recently discovered and reproduced in a leading paper in New South Wales.*

The quality of the Merino sheep, by careful attention and the judicious introduction of the best strains of blood, has attained a very high pitch of excellence, and the wool exported from the colonial flocks is regarded as amongst the very best in the world. The weight of the carcase of the merino is not great; taking an average of good and bad seasons it may be stated as being about 55lbs. The weight of the fleece of a full-grown Merino sheep of a full year's growth, in a fairly good season, is about 7lbs. The meat is remarkably well flavored, and is not inferior to that of the Southdown sheep so highly esteemed in the mother country. Larger breeds of sheep have been introduced, and are numerous, but they are bred principally for carcase, and they find a ready sale in the colonial markets for general consumption. Sheep in extraordinary seasons have been so plentiful that their carcases have been boiled down for the sake of the tallow, there being no better way of turning them to account. The price of mutton is generally very low, and seldom rises beyond 2½d. per pound. It is largely consumed, inasmuch as, at certain seasons, animal food of this kind is the cheapest article of animal diet procurable. Sheep are not subject to many diseases in South Australia. Scab, once prevalent, has been completely eradicated. Fluke sometimes makes its appearance amongst flocks depastured in moist and swampy situations, and foot rot is also occasionally met with in similar places; these ailments, however, prevail to a limited extent only. Sheep depastured on country which abuts on the seashore are subject to what is called the coast disease. At first the flocks fatten rapidly in such localities, but after a time they become giddy and stagger about, and, if not removed, soon lose condition and eventually die. When "coasty" symptons become manifest amidst a flock the only remedy is to remove

* *Town and Country Journal*, Sydney, September 10th, 1892.

the improvements made on the runs they speedily recover. The precise not proved to be as satisfactory as had been ex before Parliament which proposes to alter exis wool the produce of South leave the ... years ... improvem...

Year.	United Kingdom	Victoria.	New South Wales.	Other Countries.
	Lbs.	Lbs.	Lbs.	Lbs.
1883	35,768,713	4,525,423	1,512	823,395
1884	39,569,250	6,060,403	116,648	994,774
1885	39,727,458	4,919,104	16,480	704,024
1886	34,855,989	4,853,783	—	5,082,841
1887	34,577,371	4,742,904	4,800	2,737,704
1888	35,250,164	4,858,886	16,799	2,781,608
1889	37,024,094	4,549,263	—	3,253,115
1890	31,354,027	5,436,651	—	2,490,769
1891	38,979,971	5,797,290	81,000	6,703,244
1892	33,462,144	5,706,809	—	6,681,339

The subjoined table shows the price per pound of Adelaide (average greasy) wool at the London sales for the same period as the foregoing :—

Sales.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.	1892.
	d.	d.	d.	d.	d.	d.	d.	d.	d	d.
January	—	—	9	7½	8½	7½		—	—	—
February	9½	9¼	—	—	—	—	9	10	8	5¾
March	8 to 10	9	8½	6	7¼	7½	—	—	—	—
April............	—	—	—	—	—	—	9½	9	8	6¼
May	9½	9¾	—	—	—	—	—	—	—	—
June............	8¼ to 9¼	9¼	7¼	8	8	8	—	—	—	—
July	—	—	—	—	—	—	10	8½	7¾	5¾
August	9	9	—	—	—	—		—	—	—
September	8 to 8¾	9½	6¾	9	7¾	8¼	—	—	—	—
October	—	—	—	—	—	—	10½	9	7	5½
November	9¾	9¼	7	7½	7½	9	—	—	—	—
December........	—	—	—	—	—	—	11	8	6½	6¼

The countries to which South Australian wool is exported are the United Kingdom, Victoria, Belgium, France, and Germany. In 1892 Great Britian took 199,120 bales; Victoria, 17,945; Belgium, 8,970; France, 7,191; and Germany, 4,165. The total value was £1,380,409, distributed thus:—United Kingdom, £1,018,719; Victoria, £194,392; Belgium, £58,153; France, £63,631; and Germany, £45,514.

The pursuits of cattle and horse breeding have never developed to a very large extent in the province. In the first years of the colony's existence the adventurers who introduced stock of both kinds from New South Wales and the Port Philip district did well with the cattle they brought with them, but it was soon found that sheep-breeding and

wool-growing were much more profitable than the raising of horses or cattle, so that the former industry naturally took the lead. For this reason, amongst others, the number of cattle and horses has never increased very rapidly in South Australia. The local market for beef is not extensive. The distances of some of the cattle runs from the centres of consumption are great, and the difficulty of driving the stock to market in dry seasons is considerable, so that the colony is dependent to some extent on the eastern colonies, but mostly on Queensland, for supplies of beef. The extension of the Great Northern railway into the far north has overcome many of the difficulties which stockowners experienced in bringing cattle to market.

The figures show the progressive increase of horses and cattle at the end of every five years since the foundation of the colony:—

Year.	Horses.	Cattle.
1840	1,060	15,100
1845	No return	26,146
1850	6,488	60,034
1854*	10,184	74,220
1860	49,399	278,265
1865	73,993	158,057
1870	83,744	136,832
1875	107,164	219,240
1880	157,915	307,177
1884	168,420	389,726
1890-93	186,726	411,793

* No returns in 1885.

The fluctuations in the numbers of cattle during these periods have been considerable, as may be seen, but in the intermediate years they have been more marked. This may be accounted for by the effects of drought and by the transfer of stock to Queensland in many instances, and the removal of herds to new country in the Northern Territory.

The quality of the cattle raised in South Australia is excellent. Most of the principal owners of herds have gone to great expense in introducing bulls and cows of the best blood procurable in Great Britain, for stud purposes. The shorthorned cattle predominate. They appear to do well in most places as long as they can obtain sufficient feed. Herefords have been bred to some extent, and for dairy purposes Alderneys have been imported and have thriven well. At one time bullocks were largely employed in agricultural work, and much of the ploughing was done by them. They were also used in drays for the transport of heavy loads. They are very little used now in farming

operations, and are employed as beasts of draught only in remote districts, where there are no roads at all, or such as are too bad for the travelling of horses.

A table showing the prices of fat sheep and cattle in the Adelaide markets for 1892 is subjoined :—

Month.	Merino Fat Wethers.								Fat Cattle.															
									First Class.								Second Class.							
	First Class.				Second Class.				Bullocks.				Cows.				Bullocks.				Cows.			
	s.	d.	s.	d.	s.	d.	s.	d.	£	s.	£	s.	£	s.	£	s.	£	s.	£	s.	£	s.	£	s.
January ...	8	0	9	0	6	0	7	0	7	0	9	0	5	0	6	10	5	0	6	0	3	0	4	10
February...	9	6	10	6	7	0	8	0	7	10	9	10	5	0	6	10	6	0	7	0	3	10	4	10
March ..	9	0	11	0	7	0	8	0	8	0	10	0	5	0	6	10	6	0	7	10	3	10	4	10
April........	11	0	13	0	8	0	10	0	7	10	10	0	5	0	6	10	5	10	7	0	3	10	4	10
May	12	0	14	0	10	0	11	0	7	10	10	0	5	0	6	10	5	10	7	0	3	0	4	0
June	13	0	15	0	10	0	12	0	9	0	12	0	7	0	10	0	6	0	8	0	5	0	6	0
July	14	0	15	0	11	0	13	0	8	0	10	0	6	0	7	10	5	10	7	0	4	0	5	0
August	15	0	17	0	12	0	14	0	9	0	11	0	7	0	9	10	6	0	8	0	5	0	6	0
September.	14	0	16	0	12	0	13	0	9	0	12	0	7	0	9	0	6	0	8	0	5	0	6	0
October ...	13	0	15	0	11	0	12	0	8	0	12	0	6	0	8	0	6	0	7	10	4	0	5	10
November..	8	0	10	0	7	0	7	6	8	0	10	10	6	0	7	10	6	0	7	10	4	0	5	0
December..	9	0	10	6	8	0	9	0	8	0	10	0	7	0	10	0	6	0	7	10	5	0	6	0

South Australia is as well suited to the breeding of horses as it is to the breeding of sheep, and the animals which are reared here are generally good and serviceable. The finest horse stock that was brought into the colony came from New South Wales. At a very early stage in its career some thoroughbred Arabians were imported from India. The introduction of the Arab blood and its admixture with that of the horses which were then in New South Wales produced a stamp of animal which was eminently suited to the conditions of a country where good horses were as indispensable in those days as railways are now. The New South Wales horse was tough, hardy, and enduring. He throve splendidly on the indigenous vegetation, and was capable, without detriment, of performing journeys that, even now, can well be regarded as splendid.

"* For a week together one would, on a pinch, travel from fifty to seventy miles a days, and a hundred miles a day has often been covered by the Australian horse. The journey from the Burra to Adelaide is that distance, and some of the old colonists have accomplished it within twelve hours on a single horse." Equally good records may be found in other places where Australian horses have been put to the proof. The stock in South Australia has not deteriorated. It has been strengthened and improved by the importation of some of the best blood horses and mares of the mother country. The horses bred here bear a high character, and are not inferior to any that are produced in others parts of Australia.

* Stow: South Australia. Adelaide, 1861.

Much of the stock of heavy draught horses was imported at one time from Tasmania, but the introduction of similar breeds from the best studs in Great Britain and elsewhere has rendered the colony quite independent of that source of supply.

Mules at one time were much used in carting ore from the mines and for general purposes on stations in the bush. They were found to be serviceable, and they throve and worked under conditions which were not favorable to animals of a more expensive kind, that were neither so hardy nor so enduring.

In the North camels are extensively employed in keeping up communication with distant sheep and cattle stations, which without them would not be accessible, unless at great expense and loss of time. The regions of the province where the camels are used are well adapted to their constitutions and habits both as regards climate and food. Their importance in developing the traffic of the interior where roads do not exist and railways cannot be made is now fully recognised. Large numbers of them have been imported for use in the Far North, and in the recent explorations in the country westward of the boundary between South Australia and West Australia, which was organised and equipped by Sir T. Elder, they were employed with the most satisfactory results. There are two camel-breeding stations in South Australia—one at Beltana and the other near to Hergott, on the Transcontinental railway line. The animals are bred for station purposes and for travelling into the interior, which, without their aid, had hitherto proved to be most difficult. The animals bred in South Australia are in no way inferior to the stock from which they have been derived. The climate suits them, and the young stock are healthy. The experiment of camel-breeding has been completely satisfactory.

Ostrich farming has taken a place in the industries of the colony within the last ten or twelve years. There is an establishment near Port Augusta, where the rearing of ostriches is carried on on a large and important scale. The birds were procured from the Cape of Good Hope, and have multiplied to an extent that shows that the conditions of the country where they are located are such as are favorable to their habits. Up to the present time the export of feathers has not been large; but there is good reason to expect that in a short time South Australian-grown ostrich feathers will take a prominent place in the trade.

At a very early stage of the existence of South Australia the condition of the flocks and herds, which were gradually spreading over the country, occupied the attention of the Government. The cattle and sheep which were imported for stocking the runs brought with them either diseases or the germs of diseases, which had a prejudicial effect upon their

increase. The parasite commonly known as "scab" *(acarus psoroptes ovis)*, which was the most common form of disease, soon developed itself to such an extent as seriously to affect the quality as well as the quantity of wool produced in the colony, and, besides impairing the general health of the flocks, restricted their productiveness and rendered their flesh unfit for human food. As early as 1840 an Act was passed for the dealing with scab in sheep and preventing its spread. This Act proved to be far from effective, and between that date and 1852 three additional Acts were brought into operation. In the last year a law, much more stringent than any of the ordinances which had preceded it, was enacted. It compelled sheepowners to dress their flocks wherever there was scab, or the conditions under which their flocks existed gave reasonable grounds for suspicion that scab prevailed amongst them. Inspectors of sheep were appointed to see that the provisions of the Act were duly observed. This legislation was not followed by the results which had been anticipated, and four short amending Acts were passed in order to remedy certain defects in the original law, which was frequently ignored altogether, and in many cases successfully evaded. In 1859 a still more rigorous Act was brought into force. It imposed penalties on stockowners who had scabby sheep on their runs, and compelled them to take out licences for terms of three months or more to enable them to dress their flocks, on payment of a fee of sixpence per head. Increased fees were imposed in certain cases, and until the disease was certified by the inspectors to have been eradicated, all infected sheep were required to be branded with the letter S as a general warning to flockmasters. The new Act was so ably administered by Mr. H. T. Morris, J.P., the Chief Inspector of Sheep, that at the beginning of 1865 scab was eradicated from the colony; at least, as far as close examination could establish the fact, scab was not known to exist in any part of the province. Unfortunately in the latter part of that year some infected sheep either strayed or were brought across the border, and the disease once more spread through several flocks with which infected animals had come into contact. In 1867, in consequence of a fresh and unexpected outbreak of the disease, a short Act was hurriedly passed through Parliament, which provided for the proclamation of districts, within which infected or suspected sheep were compulsorily confined, until they were ascertained by the inspectors to be free from scab. This measure was completely successful.

In 1870 the last licence to permit sheepowners to dress their stock for scab was issued, and within a few months after the beginning of 1871 the Chief Inspector (Mr. C. J. Valentine) was able to recommend the removal of the last restriction which had been imposed. Since that time scab has been unknown in South Australia.

Up to this time very little attention had been extended to other diseases to which horses and horned cattle are liable. The only legislation on the subject was a short Act which prohibited the introduction of animals affected with *pleuro-pneumonia*. The increase of other ailments in cattle and the necessity for preventing the introduction of other infectious diseases into the flocks and herds of South Australia showed the necessity for further legislation. The powers conferred on the inspectors of stock by the Public Health Act were found to be insufficient and ineffective, because those powers could only be exercised with regard to cattle which had been imported into the province. The Government, in 1888, introduced an Act into the Legislature to provide against the spread of contagious and infectious diseases amongst horses, cattle, sheep, and other animals, &c. This Act provides for the destruction of diseased animals—as well as meat which is unfit for human consumption—and for the detention in quarantine of animals within certain defined limits, so as to prevent them from moving about the country. It deals with all infectious and contagious diseases with which animals are known to be affected, and in addition prohibits the introduction of any animals into the province, except under well defined restrictions. This Act is the first Act which has been passed in any of the colonies to provide for the compulsory inoculation of cattle for the prevention of *pleuro-pneumonia*. The Chief Inspector of Stock is of opinion that when a full staff of inspectors is established throughout the colony contagious diseases amongst horses, cattle, sheep, pigs, &c., will be completely eradicated, and South Australia will be able to show to the world flocks and herds free from all contagious or infectious disorders. As it is, the colony shows a freedom from ailments of these kinds which will compare favorably with the state of any country in the world.

CHAPTER XIX.

COMMERCE OF THE PROVINCE—IMPORT AND EXPORT TRADES—THEIR VALUE—MARKETS FOR SOUTH AUSTRALIAN PRODUCE—PORT ADELAIDE—THE MARINE BOARD—SHIPPING BELONGING TO THE PROVINCE—SHIPS INWARDS AND OUTWARDS—MAIL COMMUNICATION WITH EUROPE—STEAMSHIPS AND SAILING SHIPS—CUSTOMS DUTIES—AMOUNT COLLECTED AT PORT ADELAIDE—THE CUSTOMS REVENUE—POPULATION AND RATE PER HEAD FOR TEN YEARS—TONNAGE AND LIGHT DUES—EXEMPTIONS THEREFROM—TABLE OF EXPORTS FROM THE PROVINCE FOR FIVE YEARS—INTERCOLONIAL TRADE—TABLE OF CUSTOM DUTIES COLLECTED IN THE PROVINCE FOR IVE YEARS—THE PRINCIPAL OUTPORTS—WALLAROO—PORT PIRIE—PORT AUGUSTA—SOUTH-EASTERN PORTS—VICTOR HARBOR—THE RIVER MURRAY—TRADE ON THE RIVER—TRADE WITH FOREIGN COUNTRIES—CHIEF EXPORTS TO THOSE PLACES—THE UNITED STATES—COMMERCE WITH THAT COUNTRY LIMITED—FRANCE—VALUE OF IMPORTS AND EXPORTS FROM GERMANY—TRADE WITH NORWAY AND SWEDEN, BELGIUM, JAVA—LIGHTS AND LIGHTHOUSES—PILOT SERVICE—CHAMBER OF COMMERCE—THE CURRENCY—BANK AND BANKING STATISTICS—THE SAVINGS BANK—POST OFFICE—TELEGRAPHS—STATISTICS—POSTAL AND TELEGRAPH RATES.

THE rise and progress of the special industries from which the principal productions of South Australia are derived, and the large trade which has been developed by them, have already been recorded in preceding chapters. A general view of the trade of the province will show the position the colony occupies in the commerce of the Australian group. For the last ten years, with one exception (in 1886), the combined import and export trades (in money value) have never fallen below £10,000,000 sterling, and in 1891 they exceeded the sum of £20,000,000. Notwithstanding the many unfavorable circumstances which have affected production during the last three or four years—such as deficient cereal crops, the low prices of copper and wheat, and the fluctuations in the value of wool in the London market, and more recently of silver—the colony has steadily and substantially gained ground during the ten years which ended in 1892. The proximity of our eastern frontier to the Broken Hill silver mines, and the facilities afforded by our railways, enable the inhabitants of the silver mining districts to draw a considerable portion of their supplies from South Australia, or through her agency. A very large intercolonial trade has grown up in consequence. The general increase in the imports into and the exports from the province is shown in the following table, taken from the official returns for 1892.

Decennial Return showing the Combined Import and Export Trade of South Australia.

Year.	Combined Import and Export Trade.	Total Imports.	Imports Retained for Home Consumption.	Imports Re-exported.	Total Exports.	Exports of Produce of the Colony.
	£	£	£	£	£	£
1883	11,193,516	6,310,055	4,914,421	1,395,634	4,883,461	3,487,827
1884	12,373,057	5,749,353	4,417,871	1,331,482	6,623,704	5,292,222
1885	10,706,159	5,289,014	4,257,468	1,031,546	5,417,145	4,385,599
1886	9,341,758	4,852,750	3,185,880	1,666,780	4,489,008	2,822,138
1887	10,427,073	5,096,293	3,114,074	1,982,219	5,330,780	3,348,561
1888	12,397,736	5,413,638	3,100,313	2,313,325	6,984,098	4,670,773
1889	14,063,816	6,804,451	3,239,778	3,564,673	7,259,365	3,694,692
1890	17,090,051	8,262,673	3,845,357	4,417,316	8,827,378	4,410,062
1891	20,468,591	9,956,542	4,129,806	5,826,736	10,512,049	4,685,313
1892	15,214,717	7,395,178	2,807,898	4,587,280	7,819,539	3,232,259

From the above the following facts are derived:—The value of the combined imports and exports for the year 1891, the year of the greatest trade (£20,468,591), gives the rate of £63 17s. 7d. per head of the population for that year. The value of the imports (£9,956,542) is equal to £31 1s. 5d. per head, and that of the exports (£10,512,049) shows the rate of £32 16s. 2d. per head.

The imports consumed in the colony, valued at £4,129,806, amount to £12 17s. 1d. per head, and the exports the produce of the colony (£4,685,313) amount to £14 12s. 5d. per head. In the following year there was a falling off in the combined exports and imports to the extent of about one-fourth. That year, however, was one of very general depression, which was greatly aggravated by the closing of the Broken Hill mines, owing to a strike which lasted for several weeks. Taking the average of ten years ending in 1892 the annual value of the combined imports and exports has been £13,327,674. This gives an annual mean of £42 16s. 10d. per head of the mean population for the period, 311,069. The mean annual imports amount to £6,512,995, or £20 18s. 9d. per head. The mean annual exports come to £6.814,653, or £21 18s. 1d. per head. The imports consumed in the colony show an annual mean of £3,701,287, or £11 17s. 11d. per head, and the mean yearly exports, being the produce of the colony, total £4,002,945, or £12 17s. 5d. per head.

The principal market for the produce of South Australia is, of course, England. In 1892 the total value of the exports to the United Kingdom amounted to £3,167,298, or £9 10s. 11d. per head of the population. The imports from the mother country in the same year were valued at

£2,372,185, or £7 3s. per head. The balance in the value of exports over imports was £795,113, or £2 7s. 11d. per head in favor of South Australia.

The following briefly summarises the value of the imports and exports for the year:—

	Imports.	Exports.
	£	£
The United Kingdom	2,372,185	3,167,298
The Australian Colonies	4,052,896	3,610,852
Other British Possessions	219,405	716,629
Foreign Countries	750,692	324,760
All Countries	£7,395,178	£7,819,539

The province of South Australia is almost without navigable inland waters, so that her seaports are for the most part situated on the coast. The coastlines of Spencer's Gulf and St. Vincent's Gulf, however, afford sites for numerous shipping places at which inland produce brought to the sea by railway and road can be safely placed on shipboard for transport. The principal harbor in the province is Port Adelaide, formed by an arm of the sea about eight or nine miles long running parallel to the coast at a distance of about a mile and a half. Near the southern end of this inlet on the eastern side the town of Port Adelaide is built. It is well supplied with warehouses and bonded stores, and has extensive and commodious wharves. The Port is connected with the capital by a railroad seven miles and a half in length, which is extended along the wharves, from which merchandise can be loaded into trucks from the shipping and from the trucks into the vessels which lie alongside. Port Adelaide contains about 6,000 inhabitants. It is well lighted with gas, and has an abundant water supply drawn from the Adelaide waterworks system, which begins at the Torrens gorge in the hills, about ten miles east of the city. Merchandise can be transported from the Port to any station on the railway lines which are connected with Adelaide. Port Adelaide finds access to LeFevre's Peninsula by means of a bridge, which carries the railway trains and at the same time is available for carriages and foot passengers. On the peninsula there is the corporation of the Semaphore, which contains over 7,000 inhabitants. Port Adelaide and the Semaphore are included in one electoral district, which return two members to the House of Assembly.

The shipping is berthed principally in the stream or along the wharves, but there is a dock at the port in which large ships can be accommodated. On the shore of the peninsula opposite to the port there are extensive Government workshops, some ship yards, and a patent slip suitable for large vessels which may require repairs. Near the mouth of the Port River, on the seacoast, stands a lighthouse, the light from which is visible for about twenty-five miles. The light revolves and flashes every thirty seconds. The navigation of the channel to the port was formerly obstructed by two limestone bars, each more than a mile long. These have been dredged away so as to leave a fairway of 300ft. with a depth of 24ft. This channel is marked off by thirteen light beacons, each showing a light after sunset. That at the entrance is red, the others show white lights along the course of the fairway. The river can, in consequence, be navigated in safety by night as well as by day. There is an efficient pilot service for the assistance of shipmasters who are strangers to South Australian waters. Port Adelaide is the head quarters of the Customs Department.

The maritime affairs of the province are under the control of the Marine Board, presided over by the Collector of Customs. The board is constituted by wardens, who are in part nominated and in part elected by shipowners and others. It controls the lighthouses within the limits of the colony, regulates the different harbors and their moorings, licenses pilots, takes cognisance of offences against the shipping regulations, and deals with the certificates of masters and officers of ships who may endanger the safety of vessels by reason of neglect, incompetency, or some default in navigation. All the harbor works, such as deepening operations and other improvements, are carried out under its direction and superintendence. The Marine Board has the management of the jetties at the outports, unless they are taken charge of by local bodies, and also of the lifeboats, of which five are stationed at suitable places on the coast; there are also twelve rocket stations.

The table below shows the number of steamships and sailing vessels belonging to Port Adelaide for the ten years ending in 1892:—

Year	Steamers.	Tonnage	Sailing Vessels.	Tonnage.	Year.	Steamers.	Tonnage.	Sailing Vessels.	Tonnage
1883	84	10,781	218	26,425	1888	81	8,755	220	25,890
1884	88	10,665	220	27,931	1889	86	10,171	218	25,164
1885	91	10,979	224	27,467	1890	85	10,051	219	25,263
1886	92	11,716	220	26,767	1891	89	14,336	221	25,403
1887	84	10,013	225	27,473	1892	90	15,852	215	23,909

The number of vessels which entered Port Adelaide in 1892 appears below:—

British.			Foreign.		
	No.	Tons.		No.	Tons.
With cargo	540	756,018	With cargo	114	206,445
In ballast	17	9,019	In ballast	16	9,515
Totals	557	765,037	Totals	130	215,960

Making a total of 687 vessels of 980,997 tons.

The number of vessels which cleared from Port Adelaide in the same year was:—

British.			Foreign.		
	No.	Tons.		No.	Tons.
With cargo	467	696,830	With cargo	57	176,570
In ballast	51	39,156	In ballast	34	30,358
Totals	518	735,986	Totals	121	206,918

Port Adelaide is the port of call for the royal mail steamers, but these vessels do not come into the Port River. Their stay is very brief—not more than a few hours, and they usually anchor in Largs Bay, where the mails and such cargo as may require to be shipped or landed are transported to and fro by means of steam launches and lighters. The principal steamship companies whose vessels call at Largs Bay are the Peninsular and Oriental Steam Navigation Co., the Orient Line, the Messageries Maritimes (French), and the Nord Deutscher (German). There is a mail to England every week, the service being performed alternately by the Peninsular and Oriental and the Orient boats. Mails are also made up for the French and German steamers as required. Besides these regular traders other steamships visit South Australian waters from time to time as inducements present themselves. The largest part of the South Australian maritime trade is carried on by steamers. In the year 1892 693 steamships came to the colony, the aggregate measurements of which amounted to 953,201 tons; in the same period 313 sailing ships, measuring 249,067 tons, entered South Australian ports. The clearances of steam and sailing craft were about the same in number in the above year.

The Customs duties are levied on imported merchandise by special rates, and on an *ad valorem* scale; at the same time there is a free list.

The former vary, according to the nature of the articles charged with duty, and the latter range between 10 and 25 per cent. The following figures give the amount of duties collected at Port Adelaide for five years ending with 1892:—

	1888.	1889.	1890.	1891.	1892.
	£	£	£	£	£
Port Adelaide................	494,019	470,105	534,181	565,189	520,827
Adelaide Branch	82,498	97,199	110,503	107,588	98,961
	476,517	567,304	644,684	672,777	619,788

The table below shows the net Customs revenue for ten years ending in 1892, the mean population, and the amount per head of taxation raised by Customs duties:—

Year.	Customs Revenue.	Mean Population.	Rate per Head.
	£		£ s. d.
1883........................	618,811	300,100	2 1 2
1884........................	517,980	307,433	1 16 8¼
1885........................	571,358	306,212	1 17 3½
1886........................	435,918	304,336	1 8 7¾
1887........................	468,037	308,215	1 10 4¼
1888........................	533,691	306,641	1 14 9½
1889........................	529,505	311,112	1 14 0½
1890........................	602,478	314,195	1 18 4¼
1891........................	614,957	320,723	1 18 1
1892........................	580,715	331,721	1 15 0

NOTE.—In the year 1883 the highest rate of *ad valorem* duty was 10 per cent.; in 1885 the duties on some articles were increased to 15 and 20 per cent.; and in 1887 a further increase on some commodities to 25 per cent. took place. The tariff includes an extensive free list.

Besides the Customs duties, tonnage and light dues are levied on ships visiting the colony, which vary according to the size of the vessels. There are exceptions, however, such as British war vessels and troop ships, foreign war ships, ships of the Royal Yacht Squadron, pleasure yachts, and ships refitting or outfitting for whale fisheries.

The following statement shows the gross amount of Customs duties received upon the principal and other articles imported subject to duty for the years 1888-92 :—

	1888.	1889.	1890.	1891.	1892.
Rated Goods—	£	£	£	£	£
Beer	12,997	13,567	14,854	13,585	11,300
Boots and shoes	10,963	11,773	9,964	9,358	7,340
Candles	5,235	4,706	5,785	3,809	4,066
Cement	1,800	1,402	1,736	1,932	1,856
Cheese	5,579	3,868	1,275	358	1,123
Chicory	1,728	1,542	2,200	1,494	843
Chocolate and cocoa	2,743	2,256	3,488	3,233	3,049
Coffee	4,817	4,350	4,625	4,461	4,470
Fish, Preserved	5,397	6,045	8,139	7,300	6,867
Fruits, Dried	18,012	18,363	20,113	19,016	22,551
Hops	6,679	6,584	7,438	5,907	5,833
Iron—Galvanized corrugated	8,071	2,391	4,457	6,923	3,591
Live stock	7,371	9,759	16,373	10,616	13,644
Malt	8,372	7,520	8,692	8,169	10,616
Oil, in bulk	15,677	14,594	19,367	20,056	18,680
Potatoes	1,694	3,093	3,947	2,405	207
Rice	2,166	2,120	2,360	2,541	2,539
Salt	3,353	1,295	1,959	1,532	1,041
Spirits	98,139	102,381	111,413	108,258	102,051
Sugar—Molasses and treacle	38,041	40,263	43,532	41,689	41,314
Tea	32,002	27,821	27,690	29,577	30,560
Tobacco, cigars, and snuff	51,345	58,183	63,763	70,088	70,318
Wines	4,802	4,817	4,732	4,020	3,342
Woods	8,376	4,977	11,019	8,344	9,772
All other rated articles	56,077	48,419	61,924	63,218	62,246
	411,436	402,087	460,851	448,239	439,219
Ad valorem—					
Agricultural implements	1,656	1,661	2,208	2,304	1,668
Apparel and slops	31,932	33,141	38,883	40,716	36,429
Boots and shoes	6,212	6,113	6,373	6,804	6,067
Carpeting	2,631	2,268	2,551	2,819	1,982
Clocks, watches, and jewellery	4,311	4,496	6,846	7,868	4,772
Drapery	55,743	47,907	50,812	56,070	44,759
Drugs	6,239	6,259	7,430	7,553	6,635
Earthen and china ware	2,397	3,023	3,309	3,135	3,589
Fancy goods	5,290	4,509	5,736	6,888	4,903
Furniture	4,972	5,460	7,688	8,080	6,839
Leather	1,439	959	878	1,119	768
Musical instruments	2,106	2,156	3,667	3,967	3,027
Plate and platedware	2,130	2,688	2,748	4,667	3,357
Tweeds and cloth	10,588	8,742	8,715	9,218	6,980
All other *ad valorem* goods	56,361	56,897	66,390	87,334	71,597
	194,007	186,279	214,234	248,542	203,372
Excise duty on colonial distilled spirits	2,623	3,712	4,522	6,228	6,410
Total gross revenue collected from Customs duties	608,066	592,078	679,607	703,009	649,001

Below is added an abstract showing the value of the exports from the province for five years ending in 1892 :—

	1888.	1889.	1890.	1891.	1892.
	£	£	£	£	£
Bark	41,299	42,979	56,000	40,090	34,244
Bullion—Coin	84,213	168,839	687,712	560,582	633,426
Drapery	121,292	71,522	85,788	116,867	78,554
Eggs	45,717	37,899	44,204	48,544	27,771
Grain and flour	2,212,593	966,908	2,023,943	1,935,630	952,20
Hay and chaff	64,106	117,276	18,340	18,305	23,189
Hides and skins........	220,734	186,879	175,220	231,353	225,684
Jams and preserves	25,834	19,566	19,593	19,294	18,032
Leather	33,929	40,227	21,429	32,497	41,373
Live stock	30,749	81,462	64,294	77,466	53,597
Metal—Copper	254,062	214,496	155,687	182,886	133,503
Silver-lead	914,569	1,900,932	2,189,120*	3,166,120†	2,241,706‡
Ore—Copper	73,500	82,890	71,515	53,175	43,485
Silver-lead	5,233	15,277	20,521	104,391	19,293
Spirits................	34,197	32,039	30,498	34,197	29,724
Sugar	33,326	38,746	43,656	44,743	64,107
Tallow	11,878	9,096	16,952	31,929	22,793
Wine	47,444	53,277	57,674	70,122	72,387
Wool	1,610,456	2,194,701	1,871,277	2,166,125	1,954,403
Other goods	1,119,067	984,354	1,173,889	1,577,733	1,150,063
Total exports......	6,984,098	7,259,365	8,827,378	10,512,049	7,819,539

* Includes metal—Lead, £82,294. † Includes metal—Lead, £119,017.
‡ Includes metal—Lead, £111,788.

Formerly a large intercolonial trade in wheat and flour was carried on, but the market for South Australian produce in the other colonies has gradually become much restricted. Victoria has supplied her own wants for some years, and now exports her surplus cereal produce. New South Wales may be expected to do so within a short period. These circumstances necessarily limit the demand for our cereals to those Australian colonies which do not produce enough for themselves, and tend to confine the export of South Australian breadstuffs principally to the English market.

The extension of agricultural settlement and the founding of new centres of population necessitated the establishment of other ports besides Port Adelaide, of which there are now twenty-four, situated at various points on the seaboard and on the River Murray. These have drawn away some of the trade from Port Adelaide, which for many years was the only shipping place in the province. With the discovery of the copper mines at Wallaroo and Moonta, the port of Wallaroo came into existence, and for several years it was the most prosperous of the outports. The gradual decline in the price of copper, and the consequent diminution of

the quantity produced, have considerably lessened its importance, although a profitable trade is still carried on there. The bay at Wallaroo, which constitutes the harbor, is commodious and safe, and has excellent anchorage; but the ships visiting the place moor alongside the jetty, which is connected with Kadina by railway, and also with Moonta, from which the copper ore is brought down to the sea. It is situated on the eastern shore of Spencer's Gulf, on Yorke's Peninsula. Large smelting works are established there, which are supplied with coal from Newcastle, New South Wales. The richest kinds of ore are treated there and reduced to fine copper. Formerly the inferior grades were sent to Newcastle as ballast in the colliers which brought the coal, to be dealt with at smelting works established there, where coal could be procured at the cheapest rate. There is an extensive area of agricultural land on Yorke's Peninsula to the south, and inland to the north and east, the produce of which is brought down to Wallaroo Bay for shipment. The population of the mining district of Wallaroo, which comprises Wallaroo, Kadina, and Moonta, is about 5,000; but with the adjacent agricultural districts, more or less connected with the mining centres, it contains about 15,000 souls.

Port Pirie, which lies to the north of Wallaroo, has lately become a place of considerable importance. It rests on an arm of the sea, not dissimilar in character to that at Port Adelaide. The entrance was blocked by a bar, and the channel was shallow, but deepening operations have been carried on there, and large ships can now be brought up to the wharves, which are extensive, and are connected with the railway. The trade at this town is mainly dependent on the Broken Hill mines, a very large quantity of the produce of these mines being sent thither. Extensive smelting and ore-reducing and refining works are established there, and they furnish employment to a great number of persons. The population is about 3,000. A strike of the miners, which took place at Broken Hill during 1892, seriously crippled the trade of Port Pirie during its continuance, but it has now recovered from the effects of the disturbance. Port Pirie forms an outlet for the extensive agricultural districts which are accommodated by the railway leading from Broken Hill. It is a corporate town, and is well lighted and supplied with water.

Port Augusta, the most northern port in the province, is situated at the head of Spencer's Gulf, where the town is built. It is one of the termini of the Transcontinental railway line, and the shipping place for the pastoral produce of the country to the north and west. Almost all the wool which is raised on the north-eastern sheep runs is sent thither for shipment. Ships of large tonnage can come up to the wharf in the

town. As the shores close in, the appearance of the arm of the sea resembles that of a tidal river. It deceived Captain Flinders when he discovered it. He had expected to find a stream of fresh water at the head of the indentation in the coast, but was sorely disappointed. It is a corporate town, well supplied with water and very conveniently laid out. Port Augusta gives its name to a Roman Catholic Episcopal See, which includes the northern portion of South Australia proper. It contains about 7,000 inhabitants. Ever since its establishment, in the time of Sir Henry Young, after whose wife it was named, Port Augusta has been growing in importance, and eventually must become the depôt for all the stock and wool produced in the south-west districts of Queensland, and of which it already receives a large part. A railway line to the Queensland border has been contemplated for some years past, although no active steps have yet been taken to put the project into execution. In all probability the subject will be taken in hand at no very distant date. The passage by water to the head of the gulf from the Eastern Shoal, where the land begins to close in, is probably one of the most picturesque to be found in the colony. The Flinders Range approaches it very nearly. The scenery is wild, rugged, and almost Alpine in grandeur. The singular eminence called the Devil's Peak, which is the highest point visible from the water, forms a striking object, towering above all the surrounding hills. It is remarkable in outline, tapering almost to a point, which seems as if it had been twisted at the top by some violent convulsion. About twenty miles to the north lies the township of Quorn, the centre of a fertile agricultural district, and the place where the Northern railway from Adelaide joins on to the Transcontinental line. The line from Port Augusta north to and through Quorn into the Far North is made on the narrow gauge of 3ft. 6in.

In the earlier days of the colony a considerable amount of trade was carried on with the south-eastern districts through Guichen Bay and MacDonnell Bay, which lie on the south coast not far from the Victorian border. These places are now practically abandoned. They were dangerous open roadsteads with bad anchorage, and at times unapproachable. Many ships were lost there. The construction of railways into the south-eastern country and on to Melbourne has diverted what traffic there was to Rivoli Bay and Lacepede Bay, where there is shelter at all times and good anchorage. Lacepede Bay is singularly free from sea dangers, being always calm, no matter what weather may prevail in the ocean outside. The former bay takes most of the trade from the western districts of Victoria which are contiguous to our eastern boundary.

Victor Harbor, at the north-western end of Encounter Bay, on the south coast, has a splendid harbor and excellent anchorage. It was

formed by running out a breakwater east from Granite Island. Ships of any tonnage, and in large numbers, could find suitable and safe quarters there. It is not much in use, however. The produce which comes down the Murray from the interior must be unloaded at Goolwa on to railway trucks, and at Victor Harbor unloaded again into lighters for shipment. This is a serious disadvantage, because the river steamers discharge into railway trucks at Morgan and the wool is transported to the wharves at Port Adelaide without delay. The breakwater was a costly work, and is effective for all maritime purposes, but as a commercial undertaking it has not been a success. The outlay on the breakwater and jetty was £115,000.

A considerable quantity of the wool grown in the country bordering on the River Murray is brought to South Australia, the cheapness of water carriage down the river forming the chief inducement to ship the wool to England and elsewhere from South Australia. There is much competition amongst the colonies which abut upon the Murray and its affluents, but the railways which join the stream a long way above the boundary of this colony take away from it an immense quantity of the carrying trade.

The principal foreign countries to which the colony exports produce are Belgium, France, Germany, Java, New Caledonia, and the United States. The chief articles of commerce are wool and breadstuffs. The foreign States from which goods are imported into the province are Belgium, China, France, Germany, Norway and Sweden, and the United States. The trade with China (import) has fallen away greatly within the last four years, but the trade with Ceylon, India, Hong Kong, Singapore, and British India has compensated for the decline in the business with China. Much of the tea which came into the colony from China has been supplanted by supplies from Ceylon and India, and the importations from those places are likely to grow larger every year.

The commercial interchange with the United States of America has never been extensive. The exports thither have not amounted to £62,000 in any one of the last five years. During the whole of that period the value of South Australian produce which has been exported to the States was no more than £201,278. The largest importation from the United States during the last five years was to the value of £319,005, and the total for the whole period was valued at £1,131,996. The chief articles which the colony takes from America are kerosene and other illuminating oils, hardware, timber, and tobacco. At present South Australia has little to offer to her in exchange except wool; but the duty levied on it in the States is so high as to be virtually prohibitory.

The trade with France is small. The imports from that country were something below £90,000 during the last five years, and in the same period the exports thither exceeded half a million sterling. The trade, however, is very uncertain. The exports to Germany amounted to £173,764 in the five years ending in 1892, the principal article being wool: the imports thence for the same term were valued at £1,051,952, the goods being of a miscellaneous character. Norway and Sweden supplied the colony with produce, chiefly timber, to the value of £257,853 in the five years to the end of 1892, but took nothing from South Australia in return. A trade is gradually growing with Belgium. In the five years ending in 1892 she imported goods valued at £78.621, and received from the colony produce to the extent of £409.149. The Dutch settlement of Java is a constant, but not a large, customer for South Australian breadstuffs. The value of the exports to that island was £75,011 for the five years ending in 1892, and the imports thence came to £243,604.

The total value of the foreign trade of South Australia for the five years ending in 1892 is shown in the figures below. It amounts to £4,708,557.

Years—	1888.	1889.	1890.	1891.	1892.
	£	£	£	£	£
Imports	302,542	411,182	660,083	841,590	750,692
Exports	441,253	339,113	278,453	358,888	324,760
Totals	743,795	750,296	938,536	1,200,478	1,075,452

The coast of South Australia is well lighted. There are twenty-two principal lighthouses on the seaboard in South Australian waters, which extends for about 1,600 nautical miles; and the navigation, as far as lights assist it, is generally free from danger. Besides these, lights on jetties which project into the sea are shown on seven of the most important. The channel at Port Adelaide is marked by thirteen light beacons, and the arm of the sea which runs up to Port Pirie by ten light beacons. Both of these inlets can be navigated after dark.

South Australia possesses an efficient staff of pilots for all the ports. Sea pilotage is not compulsory on shipmasters, but pilots' services are

indispensable for all ships entering or leaving ports. At Port Adelaide masters of vessels which trade regularly to and fro, on satisfying the Marine Board of their competency to pilot their own ships, can obtain certificates of exemption from harbor pilotage.

A Chamber of Commerce is established in Adelaide, composed of the principal business men in the city. It concerns itself with all subjects which affect trade and shipping and other affairs connected with them. It is the medium of communication between the mercantile community and the Government on questions in which trading interests may be concerned. Mercantile charges for transacting business of various kinds are regulated by a scale determined on by the Chamber of Commerce in 1883.

The currency of the colony is similar to that of Great Britain, being reckoned in pounds sterling, shillings, and pence, the same as in all of the Australian colonies. The specie in circulation is not provided by the Government of the province, but is supplied by the different banks, which import the coin required by them and their customers. Besides the gold, silver, and copper which are in circulation, bank notes of various nominal values from £1 upwards are issued by the banks for their own convenience, and these constitute the larger portion of the currency. The notes are subject to a tax of £2 per cent. per annum, and are a first charge upon the assets of the banks which issue them. The Government issues no notes. It confines its monetary operations to the receipt of revenue and the payment at the Treasury of the public claims upon it. The desirability of establishing a State Bank in the colony has been strongly advocated in public as well as in Parliament, but at present there appears no probability that any such project will be carried into effect. In 1892 there were nine banking establishments in the city of Adelaide. Only one of them is a purely local institution. Some of the others have their head establishments in England or Scotland, besides branch banks in the other colonies: some also have local branches or agencies in various towns in South Australia. The banks issue drafts and letters of credit available anywhere in Great Britain or Ireland, as also in Europe, India, or in America. They purchase bills and make remittances at the current rates of exchange. They also receive money on deposit for various terms, and allow such interest as may be determined on, or at the prevailing rates. The terms vary according to the periods for which the deposits may be made. The banks are associated for certain purposes. The rates of exchange are fixed by them, and they regulate their transactions with the Government and other matters, according as they affect their common interests.

The following figures show the position of the various banks at the close of the year 1892:—

Average Amount of Coin and Bullion held by the Banks.

	£	s.	d.
Bank of Australasia	220,740	8	7
Union Bank of Australia	348,133	7	10
National Bank of Australasia	386,900	11	4
English, Scottish, and Australian Chartered Bank	147,917	12	11
Bank of Adelaide	106,526	17	6
Bank of New South Wales	240,306	8	5
Commercial Bank of Australia	69,453	14	11
Bank of New Zealand	57,560	9	9
Federal Bank of Australia	54,323	15	0
Total	£1,631,863	6	3

Average Amount of the Notes of the several Banks in Circulation.

	£	s.	d.
Bank of Australasia	26,950	18	6
Union Bank of Australia	74,034	6	11
National Bank of Australasia	112,628	6	11
English, Scottish, and Australian Chartered Bank	37,061	3	0
Bank of Adelaide	75,845	8	5
Bank of New South Wales	38,936	2	3
Commercial Bank of Australia	17,103	4	0
Bank of New Zealand	3,436	7	8
Federal Bank of Australia	14,160	13	11
Total	£400,156	11	7

The notes of the banks issued in South Australia do not constitute a legal tender. The law is with regard to tender the same as it is in England. The position of the banks towards the public is determined by the Bank Act No. 25 of 1863.

The average amount of the liabilities and assets of the several banks within the province at the end of 1892 is given beneath.

Liabilities.	£	s.	d.	£	s.	d.
Notes in circulation	400,156	11	7			
Bills in circulation	10,733	4	6			
Balances due to other banks	49,629	10	6			
				460,519	6	7
Deposits, bearing interest	5,800,405	6	6			
" not bearing interest	1,699,112	18	10			
				7,499,518	5	4
Total average liabilities	—			£7,960,037	11	11
Government deposits, bearing interest	340,256	8	1			
" " not bearing interest	67,795	19	8			
				408,052	7	9

Assets.	£	s.	d.
Coined gold, silver, &c.	1,612,820	7	0
Gold and silver in bullion or ingots	19,042	19	3
Government securities	223,700	0	0
Landed property and bank premises	402,504	19	8
Notes and bills of other banks	30,302	11	7
Balances due from other banks	132,099	12	5
Notes and bills discounted and other debts due to banks not before enumerated	7,271,150	1	10
Total average assets	£9,691,620	11	9

Percentage the reserve of coin and bullion bear to the banks' liabilities........ 20·5

The average liabilities and assets of the several banks for ten years ending in 1892 were as follows:—

Year.	Liabilities.			Assets.		
	£	s.	d.	£	s.	d.
1883	5,306,595	4	10	11,868,024	17	4
1884	5,553,159	2	6	11,546,828	10	10
1885	6,504,792	9	2	12,380,722	11	8
1886	5,474,662	3	0	11,446,883	1	4
1887	5,712,295	10	10	10,412,042	19	11
1888	6,651,262	10	3	10,757,663	1	10
1889	7,368,528	5	7	11,189,194	6	11
1890	7,759,926	5	7	11,489,842	11	9
1891	8,303,506	8	11	10,805,547	12	4
1892	7,960,037	11	11	9,691,620	11	9

NOTE.—In the present year whilst this work was passing through the press severe financial troubles overtook the whole of the Australian colonies. South Australia, of course, did not escape their influence, though their effects were less felt here than they were in other places. As the banks in other colonies, which were represented in this colony, closed their doors, the branches which represented them in Adelaide were compelled to close also. It seems certain that the South Australian branches of the banks which suspended payment were able to meet the whole of their local liabilities, and ceased to transact business solely because of the failure of their head offices elsewhere. The Bank of Australasia, the Union Bank, the Bank of Adelaide, the Bank of New South Wales, and the Bank of New Zealand easily met all the demands which were made upon them.

The Savings Bank of South Australia plays an important part in indicating the prosperity of the people. It is not a Government institution, but is managed by trustees appointed by the Government, and its accounts are subject to examination annually by the Commissioners of Audit. The chief office is in Adelaide, but all or nearly all the post offices in the colony receive deposits on behalf of the head establishment. It

commenced business in 1848, in which year there were 293 depositors, and the amount paid in by them at the close of that year was £6,48 18s. 5d. The number of depositors and the sums deposited by them have steadily increased every year down to the present time.

The Savings Bank will receive any amount from 1s. up to £500, but interest is not allowed on sums over £250. The deposited money is lent on mortgage or invested in Government or other public securities and the interest allowed to depositors varies, according to the yearly profits on investments, less expenses of management. At the outset the rate of interest charged on loans was 10 per cent., at which rate it remained for several years; after 1860 it gradually fell till it is now no more than 5 per cent. In the beginning the interest allowed to depositors was 3 per cent. In one year it was only 1 per cent.; it has been as high as 5½; at present it is 4½, at which rate it has been stationary for the last four years.

The table underneath shows the condition of the Savings Bank for ten years ending in 1892:—

Year.	No. of Accounts.	Amount.	Rate of Interest.
		£	Per cent.
1883	46,388	1,500,248	4½
1884	49,237	1,433,509	5½
1885	53,164	1,571,283	5
1886	55,204	1,653,080	4½
1887	56,685	1,581,100	5
1888	60,301	1,627,541	5
1889	64,320	1,896,248	4½
1890	69,193	1,924,292	4½
1891	74,686	2,158,227	4½
1892	78,795	2,217,419	4½

The actual state of the institution at the end of 1892 may be seen from the following:—

Number of depositors in the year	78,795		
Increase over previous year	4,109		
	£	s.	d.
Amount deposited in the year	1,247,309	7	6
Amount withdrawn in the year	1,280,413	0	10
Depositors' balances at close of the year	2,217,431	7	9
Average amount at credit of each depositor	28	2	10
Amount of reserve fund	60,000	0	0
Total funds at the end of the year	2,292,887	15	6
Office expenditure during the year	10,050	14	6
Amount lent on mortgage in the year	1,121,771	19	11
Amount of Government and public securities	800,311	5	10
Interest charged on mortgage loans	5 per cent.		
Interest allowed to depositors	4½ per cent.		

The post office and telegraph services are so intimately connected with the commerce of a country that some particulars of their progress cannot be without interest. This is best shown by the published returns quoted below, which indicate the business of the establishments for the last ten years:—

	Postal.				Telegraphs.			
Year.	No. of Offices.	Income.	No. of Letters.	No. of Newspapers.	No. of Stations.	Miles of Wire.	No. of Telegrams.	Income.
		£						£
1883..	451	109,144	6,029,426	12,381,600	179	8,824	696,453	70,113
1884..	555	105,745	6,891,810	12,679,142	188	9,067	731,128	73,850
1885..	555	108,895	[illegible],070,227	13,158,626	190	9,378	713,379	72,162
1886..	569	104,585	6,572,013	13,119,121	200	10,310	669,442	68,131
1887..	586	106,959	7,376,953	15,381,309	205	11,008	757,363	74,835
1888..	594	109,178	7,884,453	17,012,577	210	11,448	994,930	91,153
1889..	593	107,560	9,085,714	16,388,607	210	11,677	984,180	87,464
1890..	609	111,491	9,460,075	16,794,679	218	12,178	1,068,282	90,874
1891..	629	114,607	8,883,103	17,836,092	220	12,707	985,633	79,310
1892..	638	118,227	8,733,718	17,409,769	247	12,911	853,273	68,630

The inland postage rate is 2d. per ½oz. for letters; parcels without letters, ½d. per ounce; book rate, 4ozs. 1d.; parcels by parcel post, 2lbs. 9d., and 3d. per pound for weight beyond that. Letters may be registered at a charge of 3d. The rate for newspapers inland is ½d., or to the other colonies ½d., to Great Britain 1d., to foreign places 1d. for 4ozs., and ½d. per ounce for weight in excess of 4ozs. South Australia belongs to the Postal Union. The telegraph rates are:—Inland messages, short distances, 6d. for ten words; beyond, 1s. for ten words, and 1d. for each additional word. Intercolonial telegrams are charged as follows:—To Victoria, New South Wales, and Western Australia, 2s. for ten words and 2d. for each additional word; to Queensland and Tasmania, 3s. for ten words and 3d. for each additional word; to New Zealand, 4s. 6d. for ten words and 6d. for each additional word; by the Transcontinental line the charge to Port Darwin, Northern Territory, is 6s. for ten words and 6d. per additional word; to Great Britain the charge is 4s. per word; Government messages are taken at special rates, and Press messages at a great reduction on all the telegraph lines. On the Australian continent all Government (intercolonial) messages pass free. Post office orders are obtainable at nearly all post offices in the colony. They can be obtained up to £20 inland and in the colonies, but to Great Britain the limit is £10. Postal notes up to £1 in value are

issued for the convenience of persons wishing to transmit small sums of money, and they are made payable to order or to bearer as may be required.

The telegraph line which crosses the continent from south to north, and is connected at Port Darwin by submarine cable with the Indian and European telegraph systems, was constructed by South Australia at her own cost, and is her exclusive property. The establishment of telegraphic communication with the mother country is the result of her unaided enterprise and perseverance. The other colonies which make use of the line pay a portion of the subsidy guaranteed to the company which laid the submarine cables connecting Australia with the Island of Java. This amount is apportioned according to the population of each participating colony.

CHAPTER XX.

Revenue of the Colony—How Raised—Loans—Returns from them—Revenue and Expenditure for Ten Years—The Financial Year—Mean Annual Revenue and Expenditure—Rate per Head of the Population—Revenue from Taxation alone—Rate per Head—Land and Income Taxes—How Collected—Modes of Assessment—Revenue therefrom—Stamp Duties—How Charged—Licences—Probate and Succession Duties—Municipal Taxation—Rate—Table of Municipal Taxation for Ten Years—Government Aid—Land Sales—Revenue from—Loans when first Raised—Revenue from Works Constructed by them—Amount of the Public Debt in 1892—Rate per Head—Interest per Head—Position of Bondholders—Expenditure of Loan Money—Amount Spent on Public Works apart from Loans—Total Expenditure on Works—Railways—Their Extent—Broad and Narrow Gauge—Capital Cost—Directions of Lines—Railway Systems—The Railway Commissioners—Number of Persons Employed—Progress of Railways up to 1892—Revenue from them—Comparison with other Colonies—Railway Business in 1892—Comparison of Results with Results in the United Kingdom—Locomotive Workshops—Locomotive Engines and Rolling Stock—Railway Accidents—Waterworks—Initiated in 1856—Supply for the City of Adelaide—The Adelaide Water District—Daily Consumption—Hope Valley Works—Statistics for Ten Years to 1892—Drainage Works for Adelaide and Suburbs—The Sewage Farm—The Beetaloo Waterworks—Their Extent—Total Expenditure on Waterworks—Water Conservation in the Unsettled Districts—Expenditure on—Main Roads—Expenditure on—Length of Main Roads—Overland Telegraph Line—Western Australian Telegraph Line—Length and Cost—Harbor Improvements—Military Defence Works—Drainage in the South-Eastern District—Public Buildings—Schools, &c.—Prudent Expenditure of Loan Moneys.

The revenue of South Australia is derived from sources which may be arranged under four general heads, viz.:—Taxation, Public Works and Services, Territorial Revenue, and Miscellaneous. The first includes all Customs, excise, stamp, and succession duties, land and income taxes, and licences, &c.; the second embraces the receipts from railways, waterworks, the post office and telegraphs, education fees, &c.; the third comprises land sales, rents from Crown lands, rents of buildings, &c.; and the last is made up of fines, forfeitures, fees, sales of Government property, and sundries. In the early days of the colony the revenue was divided into two branches—the general revenue and the land fund. The former was applied to the ordinary requirements of Government, and the latter to special purposes, such as immigration and public improvements.

That distinction is no longer made. The receipts from all sources are now merged into one general fund, which is dealt with according to the determination of Parliament. Besides the heads of receipt which have been mentioned, the colony, from time to time, has obtained considerable sums of money from loans raised in London. These amounts have not been included in revenue, but have been kept apart and applied to the construction of railways and the other public purposes for which they were borrowed. The returns from these undertakings have become important factors in the annual income of the colony; these will be noticed more particularly elsewhere. Besides the loans, which are represented by bonds redeemable at special dates or by inscribed stock, further sums have been raised on Treasury bills at short dates, carrying a daily rate of interest.

The following table shows the gross revenue and expenditure for a period of ten years, from 1883 to 1892, inclusive:—

Year.	Revenue.			Expenditure.		
	£	s.	d.	£	s.	d.
1882-3	2,092,286	6	8	2,225,380	0	6
1883-4	2,009,484	5	6	2,370,242	7	7
1884-5	2,157,931	0	5	2,430,513	4	7
1885-6	2,270,038	11	0	2,383,289	15	10
1886-7	1,869,942	14	9	2,165,245	14	10
1887-8	2,354,743	6	5	2,172,931	7	8
1888-9	2,302,493	12	7	2,265,949	4	10
1889-90	2,478,981	8	5	2,404,179	3	11
1890-1	2,732,222	9	9	2,603,498	9	11
1891-2	2,741,623	1	10	2,687,133	4	1
Totals	£23,018,746	17	10	£23,708,362	13	9

The financial year in South Australia runs from the 1st of July to the 30th June in the following year. The mean annual revenue for the above period was £2,301,875, and the mean annual expenditure

£2,370,836. The mean annual population for the term was 311,069, so that the revenue stands at the rate of £7 8s. 11d. per head, and the expenditure at that of £7 12s. 5d. per head.

According to the report of the Commissioners of Audit the amount of revenue raised by taxation alone during the six years ending in 1891-2 was —

	£		£
1886-7	588,072	1889-90	745,518
1887-8	740,834	1890-91	827,302
1888-9	713,872	1891-2	812,869

The amount of taxation per head of the population in each of the above years is set out beneath:—

	£	s.	d.		£	s.	d.
1886-7	1	18	2	1889-90	2	7	5¼
1887-8	2	8	3¾	1890-91	2	11	7
1888-9	2	5	10¼	1891-2	2	9	0

The mean population for the six years was 315,435; so that the mean annual taxation per head may be taken as £2 6s. 9½d. during the period. The proportion of taxation to revenue, according to the return for 1891-2, was 29·94 per cent. In the United Kingdom the proportion is 82·33 per cent.

The land and income taxes are not heavy. The land tax is at present ½d. in the pound; the income tax for 1891-2 is 3d. in the pound on income derived from personal exertion only and 6d. in the pound on income received from interest on capital invested, shares in companies, rents, &c. Incomes under £200 are exempt, and this exemption extends to £200 on all incomes. The land and income taxes are not collected in the ordinary way. Every person is required to forward to the Commissioner of Taxes early in each year a form setting out the particulars of his individual income, and, after it has been examined, notice is forwarded to each person liable, showing the amount due by him. He is required to remit this direct to the Taxation Office, or else to pay it at any post office, within one month after the issue of the notice. There is an appeal against the Commissioner's decision as to the amount of tax payable, in the event of over assessment. Persons who do not pay within a certain time are charged interest at the rate of 10 per cent. per annum on the amounts due by them, and are further liable to a penalty of 2s. in the pound. In rendering the income tax return anyone who makes any wilfully false statement in reference thereto may be prosecuted as for perjury. The land tax is based upon a triennial assessment, and where there is any dispute or reasonable doubt the value is determined by the Local Court on appeal. In determining the value of property the improvements upon it are not assessed, but the unimproved value of the land only.

In the report of the Commissioners of Audit (1891-2) the amounts of the land and income taxes collected since the commencement are shown as follows:—

	Land.			Income.			Total.		
	£	s.	d.	£	s.	d.	£	s.	d.
1884-5 } Two years collected	200	12	6	121	18	5	322	10	11
1885-6 } in one	145,817	10	10	57,255	16	3	203,073	7	1
1886-7	100,347	5	7	16,734	14	4	117,081	19	11
1887-8	88,158	3	1	35,433	11	11	123,591	15	0
1888-9	70,118	8	10	36,635	8	10	106,753	17	8
1889-90	65,998	15	6	44,038	16	7	110,037	12	1
1890-91	69,636	17	2	47,121	10	10	116,758	8	0
1891-2	65,443	8	1	49,062	12	1	114,506	0	2
	£605,721	1	7	£286,404	9	3	£892,125	10	10

It will be observed that whilst the land tax has been fluctuating in amount in every year, the income tax has shown a steady annual increase for the past five years. The official returns do not indicate the number of persons who pay income tax, so that the average *per caput* of this class of taxpayers is not estimated.

Stamp duties form a portion of the direct taxation of the colony. They are levied on bank notes at the rate of 10s. per cent. quarterly on the issue for the term. Bills of exchange and other bills, cheques, or orders payable on demand are charged 1d.; bills of exchange under £20 pay 3d.; above that amount up to £50, 6d.; and above £50 and every fractional part thereof, a further sum of 6d. Bills of lading are rated at 6d. each, and such bills must be stamped before they are executed, under a penalty of £50. On the transfer of stock or shares in any company whatever in South Australia 3d. is chargeable on the amount of the consideration expressed, where the amount is under £20, and above that, up to £50, 6d.; and 6d. for each succeeding £50 or any fractional part of £50. On conveyances of any property, real or personal, not otherwise specified, the charge is 5s. on the value of £100, and above that 5s. for each £100 or any fractional part thereof. The stamp duties realised £35,810 in 1891-2.

The chief item in the revenue derived from licences comes from publicans' licences. They average about £19,000 per annum, though in 1891-2 they were under £15,000. In that year the receipts from licences of all kinds, except those issued under the Customs Department, came to £21,122. The probate and succession duties produced £25,698 in the same year. These duties are likely to be increased. At present they are generally similar to those charged in Great Britain.

The taxes which are imposed by the State for the purposes of revenue are not the only taxes which are paid by the colonists. There are rates levied by corporations and district councils. These are fixed according to the assessed annual value of the properties included within their respective limits. In corporate towns they range from 1s. to 1s. 7d. in the pound. In district councils they vary from 4d. to 1s. 4d. in the pound. The amounts raised in this way for ten years to the end of 1892 are given below:—

	Corporations.	District Councils.
	£	£
1883	59,174	46,172
1884	67,119	47,418
1885	58,257	40,390
1886	54,053	49,449
1887	50,064	44,371
1888	49,316	46,148
1889	61,039	61,329
1890	62,162	63,137
1891	64,182	73,890
1892	65,355	64,269

The amounts raised by rates are supplemented by the Government by grants from the general revenue; and the sums so received, as well as those from other sources, are expended almost entirely on public works.

A considerable portion of the revenue has always been derived from sales of land. Of late years this has diminished considerably, the reason being that much land has been sold on deferred payments, whilst formerly it was disposed of for cash only. The actual amount paid into the Treasury as the proceeds of land sales from 1835 down to the end of the financial year 1892 was £9,588,736 14s. 9d. The revenue derived from Crown lands, apart from land sales, consists of rents; pastoral, mineral, and other leases and claims; and sundries. In ten years the receipts from Crown lands amounted to £3,139,478, which is 13·64 per cent. of the total revenue for the period.

The following table shows the revenue from lands sales and rents, &c., from Crown lands for the ten years ending in 1892 :—

Year.	Land Sales.			Leases, Rents, Licences, &c.			Totals.		
	£	s.	d.	£	s.	d.	£	s.	d.
1883....................	365,793	15	3	113,226	16	5	479,020	11	8
1884....................	290,394	2	4	120,153	1	4	410,547	3	8
1885....................	333,369	18	6	146,869	18	5	480,239	16	11
1886....................	127,076	19	6	148,342	12	3	275,419	11	9
1887....................	77,142	1	3	139,713	9	10	216,855	11	1
1888....................	123,354	8	4	193,242	3	5	316,596	11	9
1889....................	61,342	17	0	161,411	19	1	222,754	16	1
1890....................	68,415	15	8	174,235	15	9	242,651	11	5
1891....................	72,964	9	2	180,142	6	9	253,107	3	11
1892....................	59,922	17	1	182,361	18	11	242,284	16	0
Totals	1,579,777	4	1	1,559,700	10	2	3,139,477	14	3

Reference has been made to loans contracted by the Government of the colony for various objects. The first public loan was sanctioned by the Legislative Council by Act No. 18 of 1853, for the construction of the City and Port railway, and other loans have been contracted at various periods since then down to the year 1890. The money raised in this manner has contributed in an immense degree to the development of the colonial resources, and has created sources of income which go far towards the payment of the interest on the capital which has been borrowed to construct them. The returns from the railways and waterworks alone yield an annual income exceeding two-thirds of the interest payable upon the whole of the public debt. The Commissioners of Audit, reporting in 1891 on the subject of loans, wrote as follows :—" The total loans issued on account of South Australia proper amount to £20,509,600. The net amount received (allowing for discount on railway loans) was £20,232,157, of which £1,521,723 had not been expended. The outlay

on loan works was therefore £18,710,434, which may be summed up as follows:—

"Works yielding direct revenue to Treasurer—

	£
Railways	10,950,455
Telegraphs	846,727
Waterworks	1,966,977
Adelaide sewers	466,967
	14,161,126

"Works not yielding direct revenue, or on which the revenue is mixed with other receipts—

Main roads, harbors, and jetties	2,403,980
Improvements, pastoral leases purchased	534,938
Development of interior and drainage	502,439
Defences, military and naval	234,105
School buildings	399,489
Other buildings	299,806
	4,374,757
Aid to revenue and portion of premiums	174,551
	£18,710,434

"The liability on this expenditure has been reduced by the redemption of £1,148,700 out of the general revenue, and as the greater part consisted of the older bonds, which bore interest at 6 per cent., the amount of interest has been reduced by £68,322 per annum.

"The interest payable on loans for the financial year 1890-91 was £733,766. This, of course, included not only interest upon the actual outlay for works, but upon the unexpended balance, and, after deducting receipts, the net amount paid by revenue was £751,295. Against this the net revenue derived from loan works in the first list was as follows:—

	£
Railway, net earnings for year	606,820
Telegraphs (mixed with post office)	25,000
Waterworks, receipts less expenditure	65,167
Adelaide sewers, contributed out of rates	13,352
	£710,339

or nearly 95 per cent. of the amount required for the interest on the whole of the public debt, and leaving only £40,956 to be provided out of the general revenue as interest on loan moneys.

"The loan works in the second list, although not placed by us among the direct revenue-producing accounts, actually bring in a certain amount of direct revenue and indirectly create a much larger amount."* Up to

* South Australia: Some Particulars of its Development and Financial Position. Adelaide, 1892.

the end of the financial year ending in 1892 the total amount borrowed on loans was £22,450,000, of which £1,195,700 had been redeemed. The rates at which the loans were raised were—

	£
At 6 per cent.	2,245,500
" 5 "	390,000
" 4 "	17,564,400
" 3½ "	2,250,100
	£22,450,000

The balance of the debt unredeemed in 1892 was £21,254,300, and the sum required to meet the interest in the same year £867,561, which shows a mean rate of interest of £4 1s. 7½d. per cent. on the total liability. The apparent individual liability of the population on account of loans is £64 per head, and the annual amount of interest per head £2 12s. 3½d. The debt on the basis of the revenue for 1892 is equal to 8½ years income. The actual net revenue from the railways and waterworks, apart from all other results from reproductive works created by loans, amounted in 1892 to £621,181, which is £2 18s. 5½d. per cent. on the total debt of the colony, leaving £246,380 to be provided for by the returns from other public works and from the general revenue. This amounts to £1 3s. 2d. per cent. on the whole debt. Having regard to the facts which have been detailed above, the public debt of South Australia, though it may seem large in proportion to the population of the colony, cannot be regarded as affording any ground for anxiety either in the mother country or in the colony.

The national debt of South Australia, as well as the debts of the other colonies which form the Australian group, are totally different from the public debts of Great Britain and other countries. For the most part the national debts of the latter represent nothing but the liability of the various Governments for the money which has been borrowed and spent, chiefly on expensive and profitless wars, and in providing the material by means of which future wars may be carried on. The debts of the Australian colonies, on the other hand, represent public property possessing a definite commercial value, which could, if necessary, be realised at an immense advance upon its actual cost. The Australian public debts are fertile sources of revenue; the European public debts constitute the necessity for oppressive taxation. The one series is constantly growing in value and in productiveness, and adds largely to colonial prosperity; the other achieves nothing in the shape of adding to the national prosperity. As the colonies progress, their investments tend to diminish the necessity for taxation, whilst the constant danger of fresh wars in Europe renders an increase of debt as well

as of taxation always more or less imminent. Regarded in this light, the position of Australian bondholders is as free from risk as that of other capitalists who invest their money in any of the public securities which are bought and sold on the London Stock Exchange.

The present distribution of the proceeds of the loans contracted by the colony may be taken approximately as follows:—

	£
*Railways	11,118,509
*Waterworks and sewers	2,587,231
*Water conservation and development of the interior	917,584
*Telegraphs	846,727
Harbors, jetties, and wharves, and lighthouses	985,655
Military defences	245,598
Miscellaneous, including roads, bridges, schools, and other buildings, improvement of pastoral leases purchased, balances of loans not yet expended, &c.	5,738,696
	£22,450,000

This amount is subject to the deduction of £1,195,700, which has been paid off. The debt, as before stated, is now £21,254,300. The items designated by a star are revenue-producing investments; the others, although not directly reproductive in the shape of revenue, contribute extensively to the general welfare. Besides the expenditure on public works derived from loans, ever since the foundation of the colony there has been an annual outlay on other works of various descriptions, which have been paid for either out of the proceeds of land sales or from the general revenue. In the very early times they were necessarily small, but as the colony progressed they steadily increased, and in one year (1866) the expenditure exceeded £400,000. The total expenditure incurred in this way down to the end of 1892 amounted to £8,206,527, which, added to the loan expenditure, brings the general outlay on public works and improvements to £30,656,257. The additional value which this outlay has conferred upon the public estate, as well as on property in private hands, can scarcely be estimated.

The public works of the province are so intimately connected with its public debt that some account of their nature and extent may properly be given in this place. First in importance, as in extent, are the railways, the total length of which in 1892 was 1,662½ miles. Of these 1,173 miles were constructed on a narrow gauge of 3ft. 6in., and 467½ on a broad gauge of 5ft. 3in. The capital cost on the length opened and completed has been £11,714,434, equal to £7,054 per mile. Adelaide is the central terminus of all the trunk lines. On the north the railway, including a portion of the Transcontinental line, extends to Oodnadatta,

550 miles from Adelaide. On the west lines run to the eastern shore of Spencer's Gulf, at Port Augusta, Port Pirie, Wallaroo and Moonta. On the north-east the railway stretches to Cockburn, on the New South Wales border, where it meets a short line to the Broken Hill mines. On the east the line is continued to Morgan, on the River Murray, and connects that place with Port Adelaide. On the south-east there is a line to Wolseley, on the Victorian border, joining the Victorian railway system, and is continued to Melbourne. There is also a line from Adelaide south to Victor Harbor, at the northern end of Encounter Bay. From Wolseley the line is continued south to Naracoorte, and thence west to Kingston, at the south end of Encounter Bay. From Naracoorte the railway turns south to Mount Gambier, and thence strikes north-west to Rivoli Bay. Besides these there are two short lines to Glenelg, on the seacoast, one of which starts fron the central station, on North terrace, in Adelaide, and the other from Victoria-square, in the centre of the city. These two are the property of a private company. A line from Blyth to Gladstone is in course of construction, and a short one to connect that line with the railway from Barunga to Kadina and Wallaroo. A line runs inland from Port Broughton, on Spencer Gulf, for a distance of ten miles, and is not connected with the general railway system. For the purposes of management the railways are grouped into five systems. The Midland extends 140 miles north from Adelaide to Terowie. The Western system includes the lines which branch from the North line to Wallaroo and Moonta, and accommodates the settlers in the intermediate country. The Northern system, from Terowie to Oodnadatta, embraces the lines to Broken Hill, on the north-east, as well as those to Port Pirie, Port Augusta, and Quorn, on the west. The Southern system traverses the country south-east to the Victorian border, at a length of 252 miles, and the South-eastern system comprises the local lines to Naracoorte, Mount Gambier, Kingston, and Rivoli Bay.

The general control of all the railways is confided to Railway Commissioners, of whom there are three, responsible to the Parliament, to which they report annually. The chairman, who is at the head, is the chief authority, and he receives a salary of £2,500 per annum. The other commissioners receive £1,000 a year each. Besides their functions as Railway Commissioners, they form a board to receive all tenders for goods and supplies required by the local Government. The management of the railways is divided into three branches—traffic, locomotive, and maintenance. The traffic branch employs 1,015 persons, the locomotive and carriage branch 1,841, and the maintenance branch 1,114. The commissioners' and comptroller's staff number 73, making 4,043 in all.

*"The progress of the railways during the last ten years will be readily seen from the following statement:—

Year.	Mileage Open.	Capital Cost of Miles Open.	Gross Earnings.	Working Expenses.	Net Revenue.	Per Cent. of Revenue on Capital Cost.
		£	£	£	£	
1883	972	5,923,159	485,660	333,790	151,870	2·56
1884	1,036¼	6,663,614	557,055	372,187	184,868	2·77
1885	1,063¾	7,242,605	659,104	403,800	255,303	3·53
1886	1,211¼	7,533,500	549,092	370,653	178,468	2·37
1887	1,419¾	8,461,274	595,192	382,306	212,886	2·52
1888	1,500	9,395,533	883,713	432,274	451,439	4·80
1889	1,543	9,720,078	887,065	493,326	393,739	4·05
1890	1,610¼	10,234,749	1,043,878	529,005	514,874	5·03
1891 ..	1,666	11,398,839	1,223,999	617,179	606,820	5·32
1892	1,660½†	11,714,434	1,213,290	652,941	560,349	4·78

† The decrease in the mileage is due to the removal of 5½ miles of line between Kadina and Wallaroo, which were no longer required.

"The average yearly return yielded by the railways for the above period was 3·77 per cent. The amount of interest payable to the bondholders for the year on the loans raised for the construction of railways, and not redeemed, was £451,709, or at the rate of £4 2s. 2d. per cent. per annum. As the net revenue from the working of the railways amounted to £560,349, the balance available for the general revenue was £108,640.

"Notwithstanding the increase in the working expenses for the past year of 3·40 per cent., it will be seen from the following statement that the South Australian railways are worked at a lower rate and with better financial results than any other railway systems in Australasia:—

	South Australia.	Victoria	New South Wales.	Queensland.	New Zealand.	Tasmania, 1891.	Western Australia.
Percentage of working expenses to revenue, year 1891-2	53·82	69·08	61·60	60·76	63·34	87·51	99·22
Percentage of net revenue to capital cost on average miles open	4·78	2·58	3·58	2·57	2·79	0·68	0·06

* Report of Railway Commissioners, 1892.

"The summary underneath exhibits the general business done by the South Australian railways for 1892:—

Coaching Traffic—	
Passengers	5,744,487 in number
Total number of miles travelled	77,670,015 miles
Average mileage per passenger	13·52 miles
Gross amount received from passengers	£269,797
Average receipts per passenger per mile	0·83d.
Gross amount received from coaching traffic	£349,421
Average receipts per train mile	52·55d.
Average receipts per average mile open	£210
Merchandise Traffic—	
Total weight of freight paying goods	1,303,392 tons
Total weight of live stock	34,467 tons
Total weight of goods free	135,764 tons
Mileage of tons goods (freight paying) and live stock	135,828,658 miles
Average mileage per ton (freight paying)	101·53 miles
Gross amount received from merchandise traffic	£863,869
Average receipts per ton per mile (freight paying)	1·53d.
Average receipts per train mile	80·29d.
Average receipts per mile open	£520
Gross amount received	£1,213,290
Receipts per train mile	69·69d.
Receipts per average mile open	£730

The Commissioners in their report supply some figures which permit of a comparison between the results of the railway traffic in the United Kingdom and South Australia respectively. In the United Kingdom the ordinary capital of the railways, amounting to £340,000,000, returned a dividend of £4·24 per cent.; the "preference" capital, £339,182,845, produced a dividend of £4·08 per cent.; and the capital raised by loans, £239,881,845, yielded a dividend of £3·95 per cent. The proportion of working expenses to the total receipts was 55·4 per cent.; the receipts per train mile were 58·12d., and the cost of working per train mile, 32·22d. This was in 1891. In South Australia the capital, which is classed in the report as "preference," amounting to £11,714,434, returned a dividend of £4·78 per cent. The proportion of working expenses to the total receipts was 58·82 per cent.; the receipts per train mile came to 69·69d., and the cost of working per train mile to 37·50d. Although the rate of wages is higher, and the cost of fuel, &c., greater in the colony than they are in the United Kingdom, the financial return is better in South Australia than it is in the mother country.

The business of the locomotive branch of the railways is carried on at Islington, four and a half miles from Adelaide, on the North line. The workshops there are extensive, covering eight and a half acres of ground. When complete they will cover twice that area. The area of the site is nearly forty acres, of which now more than one half are laid with rails and provided with other appliances necessary for the work carried on there. The shops are supplied with machinery of the best kind, with all the latest improvements as far as procurable, for the repair of engines and for

the construction and renewal of passenger carriages, freight wagons, and trucks, all of which are constructed there, and are quite equal in comfort and workmanship to any that are constructed either in British, American, or European workshops. In many respects they are superior to those that have been imported, because they are built with material which has been seasoned in the colony, and is therefore better fitted to withstand the effects of the great summer heat, which at times is very trying. The locomotive engines which work the traffic are principally of British manufacture. Within the last few years locomotives have been constructed in the colony, at the workshops of James Martin & Co., Limited, at Gawler, twenty-five miles to the north of Adelaide, close to the main North line. These engines are good specimens of the work that can be executed in the colony, and as far as they have been worked on the railways have shown satisfactory results. Although the railway authorities have not yet built locomotive engines for use on the railways, they could be produced here without difficulty with a moderate extension of the plant which is now in operation at Islington. It is not improbable that the experiment may be tried at no very distant period. The rolling-stock of the railways consist of 241 engines, steam cars, and motors; 381 passenger carriages; and 5,691 wagons, trucks, &c. Pullman's sleeping *cars are attached to the express trains which travel from* Adelaide to Melbourne and from Adelaide to Broken Hill. The Locomotive Department is conducted by Mr. T. Roberts, M.I.C.E. The traffic is carried on under the block system. Very few accidents happen on the railways. In 1892 fifteen persons were killed on the lines and forty-one injured. Every one of the fatal casualties which are recorded was owing to misconduct or want of caution on the part of the sufferer. Only two of the fatalities befel passengers; the others occurred to servants in the employ of the Railway Department. Three persons only were injured by causes beyond their own control, of whom two were passengers and one a railway servant. The remainder of the injuries sustained were due to action or neglect on the part of the sufferers, for which they alone were to blame. The fatal accidents to passengers amounted to a very small proportion, about one in 3,000,000 of the persons travelling. All of the colonies in Australia with the exception of Western Australia are connected by railways, so that a passenger can travel from South Australia to any part of Victoria, New South Wales, or Queensland, as far as the lines extend. The fares are moderate, averaging in South Australia about 2½d. per mile for first-class passengers, and 1½d. for second. There are no third-class carriages now in use. Return tickets are issued at all stations at the rate of a single fare and a half for the double journey, and are available for six months.

The first loan for waterworks purposes was authorised in 1856. It was intended to provide a water supply for the city of Adelaide alone. The project was carried out on a small scale, a capital of only £200,000 being raised. A very short experience of the convenience and comfort of a constant supply of pure water necessitated an extension of the system. The original scheme provided for a supply to a population of 20,000 persons at the rate of 20galls. per head per diem. Now the population served amounts to about 140,000, the mains having been extended to all the suburbs of Adelaide, Port Adelaide, the Semaphore, Glenelg, Mitcham, and other places within a distance of ten miles round Adelaide. The water is stored in two principal reservoirs—one at Thorndon Park, and the other at Hope Valley. The former contains 138 millions of gallons, the latter about 700 millions. Some smaller reservoirs have been built in various places to provide for local requirements. The reservoirs belonging to the Adelaide water district contain in the aggregate 1,000 millions of gallons. The area of the district is 110 square miles, and the length of mains laid down 465 miles. The daily consumption of water in the district averages four millions of gallons daily. In order to provide against an insufficient reserve of water, which might be likely in exceptionally hot and dry seasons, an additional reservoir is in process of construction at Happy Valley, about twenty miles south of the city, which will be filled from the River Onkaparinga above Clarendon, some five miles further south, by means of a tunnel under the intervening hills. This reservoir will be capable of impounding nearly 3,000 millions of gallons, so that when completed the storage of water for the city and suburbs will be 4,000 millions of gallons, equal at the present rate of consumption to to the requirements of three years. The cost of these new works will be £500,000. The value of the Adelaide waterworks undertaking as a commercial enterprise may be seen from the following table, which shows the financial results of the concern for the last ten years :—

Adelaide Waterworks.

Year.	Capital Cost.	Revenue.	Working Expenses.	Net Revenue.	Per cent. on Capital Cost.
	£	£	£	£	£
1883	839,475	55,478	16,720	38,759	4·62
1884	859,513	57,732	15,525	42,208	4·91
1885	876,818	64,047	23,622	40,425	4·60
1886	890,882	60,146	19,677	40,470	4·54
1887	897,472	56,782	19,380	38,471	4·29
1888	903,467	57,734	18,365	39,368	4·35
1889	918,121	59,214	15,627	43,586	4·74
1890	943,217	59,189	13,605	42,585	4·51
1891	958,237	59,236	14,905	44,335	4·62
1892	964,313	60,699	14,984	45,715	4·74

The falling off in the net revenue in 1886-7 was caused by a reduction in the charges for water and abolition of rent for the use of meters. The average annual returns on the capital invested amounts to nearly £4 12s. per cent.

Connected with the metropolitan waterworks is a complete system of sewerage, which extends to some of the eastern and western suburbs. The sewage as it runs from the houses is led through the drains to the sewage farm, near the Islington railway workshops, where it is deodorised, and the residue used in the cultivation and irrigation of 400 acres of land. The whole of the drainage works are not yet complete, so that the actual financial results cannot at present be given. It is certain, however, that they will amply repay the cost of the outlay. At present about 150 miles of drains have been laid. The working of the sewage farm has been attended with some difficulty. Fruit, vegetables, beet and other roots, of the finest quality and of great size, are produced at the farm, besides butter and other marketable articles. Popular prejudice, however, rose against the products of a farm fertilised by "sewage," and for a long time people would not buy them when sent to market. For some time the farm did not pay its expenses; it is now worked at a good profit. The drainage system of Adelaide and suburbs is most effective, and has been attended with excellent sanitary results wherever it has been extended. All the houses within its area have been connected with it, and are furnished with proper closets and drains, so that no waste water is found lying about, and no accumulation of filth is possible. The abominable cesspit system is entirely done away with, and the city and suburbs of Adelaide are in consequence amongst the healthiest, in these respects, in the world. The works were planned and carried out, for the most part, by Mr. Oswald Brown, M.I.C.E., formerly Hydraulic Engineer to the South Australian Government, and now consulting engineer in England to that Government.

The most extensive water system apart from that of Adelaide is at Beetaloo, 208 miles north of Adelaide. The works there are designed to supply a tract of country having an area of about 1,725 square miles. The cost up to the present time has been £620,221. The storage reservoirs (of which there are twelve) have a capacity of nearly 850 million gallons. About 400 miles of mains have been laid. The present returns from these works are a little over 1½ per cent. on the capital cost. All the principal country towns in the colony have water laid on at the public cost, and they return from 1 to 6 per cent. on the capital invested in constructing them. The total amount expended on all the waterworks established in the colony has been £1,825,124 up to the end of 1892. The average rate of interest returned on this amount comes to £3 6s 8d. per cent.

In addition to the loans raised for the supply of water to populous places and towns a sum of £926,626 has been borrowed for the conservation of water in various places in the unsettled districts to provide for the wants of travelling stock, and for the sinking of artesian and other wells in localities where there are no creeks and no surface water. These undertakings have already done much in opening up country which without them would have remained unoccupied. The expenditure on this account amounts to £433,103; the balance is being used as circumstances require. The revenue from this outlay is not great; but any shortage in this respect is more than compensated by the value conferred on tracts of country which were partially or wholly unserviceable.

Before railways were constructed the colony had inaugurated a main road system, managed by a board, whose operations extended to all parts of the country. The money expended in making these lines of communication was provided by the Government out of the land fund whilst it existed, and subsequently out of the general revenue. Later, money was borrowed for their construction. As railways extended, the necessity for expenditure on road works became less pressing, and eventually the Government ceased to construct them in the settled districts, and handed the lines which had been made over to the district councils, which are now required to maintain them. A certain sum is annually voted by Parliament for the preservation of these roads, which is allotted according to circumstances to the councils of the districts through which they run. About £4,000,000 sterling has been expended out of loan moneys in road-making. The total length of the main roads is now 4,747 miles, of which more than 2,000 miles have been thoroughly made. The rest are for the most part situated in outlying country, and the expenditure upon them is devoted to bringing them into such condition as to make them fairly passable at all times. The care of the roads beyond the limits of the district councils is undertaken by the Government, and the funds are provided by parliamentary votes.

The Overland Telegraph line from Adelaide to Port Darwin has already been mentioned in a former page. It is 1,569 miles in length. The greater part of the line is carried on iron poles. It is substantially erected and stands well. Its total cost has been £479,175. The work was carried out by the South Australian Government under the direct supervision of Mr. (now Sir) Charles Todd, Postmaster-General. It is the exclusive property of South Australia, and is the result of her unaided enterprise. This line crosses the Australian continent from south to north. In addition to this line, another line connects the colony with Western Australia. The South Australian portion, which terminates at Eucla, at the head of the Great Australian Bight, is 1,234 miles in length. That

part which was erected by Western Australia is 752 miles in length. The South Australian section cost £68,205. All the messages from the eastern colonies for Great Britain, Europe, India, China, &c., pass through Adelaide and travel by means of the South Australian telegraphs from the junctions on the South Australian border. Western Australia possesses a cable communication of her own with the Dutch settlements in Java, and is thus connected with the European, Indian, and other telegraphs. Details of the receipts and expenditure on the Port Darwin and West Australian lines are not given separately, being merged in the general accounts of the post office, which is amalgamated with the telegraph department. The general results have been shown elsewhere.

A large expenditure has taken place in harbor improvements, in deepening operations, the construction of wharfs, and in other works. The improvements at Port Adelaide, the chief harbor of the colony, have absorbed the largest amount. The expenditure has been—

Port Adelaide	£690,072
Port Augusta	54,960
Port Pirie	111,828
Port Wakefield	17,357
Port Broughton	1,203
Franklin Harbor	1,295
Outports	27,420
	£904,134

These works do not produce any direct return in the form of interest, but they add to the general revenue of the colony in other ways. Various jetties have also been erected. On coast defences £230,000 has been expended in the erection of forts for the protection of the entrance to Port Adelaide and providing them with suitable guns, ammunition, stores, &c., the construction of a military road parallel to the coast, and the construction and equipment of a powerful gunboat. Considerable sums have also been devoted to drainage works in the south-east district, by means of which immense tracts of country which were nothing but unwholesome and useless swamps have been reclaimed and converted into valuable agricultural land. Commodious schoolhouses have been erected in every district in the colony; new Parliament buildings, a new country residence for the Governor, and a variety of other buildings which it is unnecessary to particularise, have also been erected. These works, though not reproductive, contribute their share towards the prosperity and well-being of the community. From what has been written above, it is abundantly clear that the sums which have been raised by loans are in no degree in excess of the means of the colony, and, instead

of being a burthen to the colonists, the returns from them are considerable items in their annual ways and means, and valuable aids to the development of the colonial resources.

CHAPTER XXI.

EDUCATION IN SOUTH AUSTRALIA—ITS RISE, PROGRESS, AND PRESENT CONDITION—THE STATE SCHOOL SYSTEM—COURSE OF INSTRUCTION—TRAINING COLLEGE—ADVANCED SCHOOL—SCHOLARSHIPS AND BURSARIES—HOW OBTAINED—REGULATIONS—EDUCATION COMPULSORY—EDUCATION AMONGST THE PEOPLE—STATISTICS—NUMBER OF SCHOOLS—ROMAN CATHOLIC OBJECTIONS TO STATE EDUCATION—ANGLICAN CHURCH SCHOOL—ST. PETER'S COLLEGE—WESLEYAN—PRINCE ALFRED COLLEGE—CONGREGATIONAL—WAY COLLEGE—ROMAN CATHOLIC HIGH SCHOOL—ATTENDANCE AT SCHOOLS IN THE PROVINCE—PRIVATE SCHOOLS—THE ADELAIDE UNIVERSITY—ITS FOUNDATION AND PROGRESS—THE SCHOOL OF MINES—ITS FOUNDATION AND DEVELOPMENT—THE AGRICULTURAL COLLEGE.

THERE was no system of State education in South Australia before the year 1847. Previous to that time all the schools were established by private persons, and were conducted by them without Government interference or control. There was a school in Adelaide in the very early days which was founded on the lines laid down by the British and Foreign School Society, but it was far from supplying the growing wants of the colony. Under an Ordinance (No. 11 of 1847) a capitation grant was paid by the Government to schools established by private persons, but that plan gave rise to so many objections that the Ordinance was repealed in 1851 by an Act which came into operation in the following year. The purpose of that Act was to establish public schools in which good secular instruction, based on Christian principles apart from sectarian differences of belief or opinion, should be provided. A Central Board of Education was created, consisting of seven members selected by the Governor. That board was empowered to grant licences to teachers, and to pay them salaries varying from £40 to £100 per annum. Inspectors were appointed, who periodically visited the schools and reported the results of their inspections to the central board. The school buildings were erected by means of local subscriptions, which were subsidised by the Government, according to the circumstances of each case, by amounts not exceeding £200. The working of this system did not prove satisfactory, so that a new Education Act was passed in 1875. That Act transferred the management of the public schools from the education board to a Council of Education, under the presidency of an officer paid by the State. After being in force for about three years a fresh Act was passed, which superseded the Council of Education and placed the control of the schools directly under the Minister of Education, with

competent school inspectors to assist him. The school system is that of compulsory and free education.

"The immediate management of the schools is in the hands of the Education Department, which is subject to the authority of the Minister of Education. The permanent head of the department is the Inspector-General of Schools. The colony is divided into six districts, the supervision of which is entrusted to six inspectors—one to each district. A large portion of the settled districts of the colony is divided into school districts. For each of these there is a board of advice, in part elected and in part appointed by the Government. The members of these boards advise the Minister on general matters connected with their schools, but they receive no payment for their services. They are entrusted especially with the care of the school buildings, and are provided with limited funds from the general revenue for expenditure in improvements and repairs. They decide when prosecutions are to be instituted against parents and others who do not comply with the compulsory clauses of the Act. For the effectual carrying out of these clauses, more particularly in large centres of population, there are six school visitors, whose time is chiefly occupied in looking after absentee scholars.

"The schools are of two kinds—public and provisional. A public school is one which has an average attendance of not less than twenty scholars, and is in charge of a certified teacher. A provisional school is one in charge of an uncertificated teacher, or one in charge of a certificated teacher at which the average attendance of pupils is under twenty. Children under 5 years of age are not reckoned in computing averages of attendance, except in the cases of large schools with a triple organisation. Some of the smaller provisional schools are open for half time, generally in alternate weeks, and one teacher undertakes two of them. In Adelaide and in some of the larger provincial towns each public school is divided into separate departments for boys, girls, and children under 7. In other schools the sexes are taught together. The course of instruction is alike in all schools. There is also an advanced school for girls in Adelaide. All appointments of teachers are made by the Minister Controlling Education, and all teachers are transferable from school to school, at his discretion. For serious offences they are liable to summary dismissal. In other cases the engagements are terminable on either side at one month's notice expiring at the end of a school quarter. Although teachers are paid by the Government they are not members of the Civil Service.

"There is a training college in Adelaide for those who wish to qualify themselves for the profession of teaching. The students are mainly those who have served their time as pupil teachers. The period of

training is at present one year. No fee is charged, and an allowance for maintenance is made to each student, who is bound, in return, to take service under the department for a limited term, after the period of training has expired. Persons outside the service of the department may receive instruction at that college on the payment of certain fees. All schools are open for secular instruction at 9·30 a.m. An interval of not less than one hour is prescribed for midday recess, and the minimum time devoted to actual teaching is four and a half hours in each school day. The Bible may be read by a teacher to any pupils who attend for that purpose, for not more than half an hour before 9·30 a.m.; but no religious instruction is permitted, nor is attendance at this time compulsory. The Minister Controlling Education has power to require such Bible-reading in any school, on receiving a written request to that effect from the parents of not less than ten children. The course of instruction includes reading, spelling, writing, arithmetic, geography, grammar, history, composition, poetry, elementary science, special lessons in general or moral subjects, drawing, drill, and sewing for girls. Singing is encouraged. The satisfying of an inspector of schools in the first four subjects entitles a pupil to a "compulsory certificate," which exempts the holder from all further attendance at school. In the Advanced School for Girls the course of instruction comprises the usual branches of an English education, French and German, drawing, class singing, and elementary natural science, with Latin and mathematics for the more advanced pupils. This school is open to girls who have passed the compulsory standard in a public or provisional school, or an equivalent examination. A fixed charge is made for instruction in this establishment.

"The following exhibitions, bursaries, and scholarships are annually offered for competition:—(1) Six exhibitions, tenable for three years, and of the value of £20 (or £40 for those who have to reside away from home), open to pupils under 14 years, boys and girls alike, who attend the public schools. The successful competitors are required to enter at some advanced school approved by the Minister. (2) Six bursaries, tenable for three years, and giving the right of education at the advanced school, open to all girls in the public schools who are under 14. (3) Three University scholarships of the value of £50, enable for three years, and open to all candidates under 18 who have been one year in the province.

"The Education Department is guided by regulations which are laid before both Houses of Parliament, and have the force of law, unless disallowed within one month by express resolution of either House. The regulations are revised periodically, and such alterations are made

in them as may appear to be in harmony with the best modern views on primary education."*

When the census was taken in 1891 full particulars were collected as to the condition of the people in respect of elementary education. From the information thus obtained comparisons have been made between the results which were shown at the time of the census in 1871, five years before the existing State school system was established; those which were ascertained in 1876, the year in which that system came into operation; the educational state of the colonists in 1881, when the law had been in force for five years; and the progress that had been made in education in 1891, ten years later. The total population, as shown elsewhere, was 320,431 in that year. Of these 246,085 persons were able to read, 236,514 were also able to write, and 74,346 were not able to read. Those who could read and write formed 73·81 per cent. of the population, those who could read only, 2·99 per cent., and those who could neither read nor write 23·20 per cent. At the census of 1871 62 per cent. of the people could read and write; in 1876, 69 per cent.; in 1881, 71 per cent.; and in 1891 nearly 74 per cent. were similarly proficient. In arriving at these figures the children under 5 years of age have been considered as being unable to read or write; they number 45,281, and form 14·13 per cent. of the population. Of the persons of 5 years of age and upwards (275,150) 236,514, or 85·96 per cent., can read and write; 9,571, or 3·48 per cent., can read only; and 29,065, or 10·56 per cent., cannot read. If the number of children under 5 years of age be deducted from the total population, the proportion of persons who can read and write appears in a more favorable light, because the percentage of persons at and above that age increased from 74·33 per cent. in 1871 to 81·55 per cent. in 1876; to 84·0 per cent. in 1881; and to 85·96 per cent. in 1891. As regards those persons whose ages range between 15 and 20, most of whom have been brought within the influence of the State school system, it appears that all but 2·32 per cent. can now read and write, as against 4·28 per cent. of the similar class in 1881 and 9·39 per cent. in 1871. The actual increase which has taken place in this respect between 1871 and 1891 amounts to about 7 per cent. Taking the school age as being the period between the ages of 5 and 14 the following results are apparent:—In 1871 55·31 per cent. of the children within the period could read and write; in 1876, 64·30 per cent.; in 1881, 69·56 per cent.; and in 1891, 72·05 per cent; so that whilst there was only one child in two who could read and write in 1871 three out of four children can do so now. With respect to elementary education, persons of 15 and over that age are regarded as adults. The

*From a paper prepared by L. W. Stanton, Esq., Inspector of Schools in South Australia.

returns show that of this class in 1871 there were 84·29 per cent.; in 1876, 89·74 per cent.: in 1881, 89·65 per cent.; and in 1891, 91·75 per cent. who could read and write. Of the men and women of full age 82·68 per cent. could read and write in 1871; 83·37 per cent. in 1876; 88·06 per cent. in 1881; and 90·34 per cent. in 1891.

The sexes stand nearly on an equality in the possession of elementary education. In 1871 the number of females able to read and write was less than that of the males; at the present time it is slightly greater. In 1871 the proportion of females was 60·56 per cent. and that of the males 63·53; in 1891 the proportion of females had risen to 74·16, and that of the males to 73·47. The ages at which attendance at school is made compulsory are between 7 and 13 inclusive. In 1871, five years before the Education Act of 1875 came into operation, there were 15,815 boys and 15,606 girls. The proportion that could read and write was 63·66 per cent. of the former and 64·32 of the latter. In 1876 when the present system was brought into force, 17,711 boys, or 71·05 per cent., could read and write, and there were 17,471 girls, of whom 75·49 per cent. were able to do so. In 1881 there were 19,811 boys, of whom 79·90 could read and write, and 19,859 girls, of whom 80·96 could read and write. In 1891 the number of boys was 24,267, 86·64 per cent. of whom could read and write, and 23,515 girls, 87·05 per cent., who were similarly advanced in elementary instruction. The progress of education amongst females between the ages of 13 and 20 shows a marked improvement. The number of males between these ages in 1871 was 14,661 and that of females 14,967. The proportion of the first who could read and write was 87·57 per cent., and of the second 91·39 per cent. In 1876 the numbers of the sexes were nearly equal, viz., 19,259 males and 19,239 females; 98·85 per cent. of the former could read and write and 95·37 of the latter. In 1881 there were 24,154 males, of whom 94·30 were able to read and write, and 24,278 females, of whom 96·99 per cent. were equally proficient. In 1891 of 26,007 males 96·86 per cent. could read and write, and of 26,030 females 98·66 per cent.

The question as to whether elementary instruction is evenly distributed throughout the province may be determined by comparing the degree of education stated to be possessed by residents in thickly populated corporate towns and the thinly peopled country districts. Children under 5 years of age are not included in the comparison. Exclusive of these it is found that the residents in municipalities in 1871 who could read and write represented 80·66 per cent. of their total population of and above that age. In 1876 there were 85·30 per cent.; in 1881, 88·34 per cent.; and in 1891, 89·46 per cent. The rural districts showed 72·39 per cent. in 1871, 81·55 in 1876, 82·00 per cent. in 1881, and

83·75 in 1891. It appears from this that in the town and suburban districts the ratio has increased 8·80 per cent. and in the country districts 11·36 per cent.*

The number of State schools open during 1892 was 257, and the number of provisional schools 307. There were 264 head teachers and 672 assistants—936 in all. The general total of scholars attending school was 47,094, and the average daily attendance 29,801. The cost of education for the year, exclusive of that of school buildings, was £92,830, and the expenditure on buildings £15,042. The expenditure on education at per head of the population, including the cost of buildings, amounted to 6s. 9d., or £2 5s. 9¼d. per scholar.

Although education is compulsory in the province, it is not compulsory on parents, or others who have the care and control of children within the specified ages, to send them to the State schools; but children between the ages of 7 and 9 must attend a public school, or a certified efficient school, for thirty-five days in each quarter of a year, if there be such a school within two miles of the child's residence. Children, between the ages of 9 and 13 are required to attend school, if the school is not more than three miles from their residences, unless reasonable excuse is given by the parent. Reasonable excuse is defined by the Act to be—That the child is under efficient instruction at home or elsewhere; that the child has been prevented from attending school by sickness, danger of infection, temporary or permanent infirmity, or other unavoidable cause, or that the child has been educated up to the compulsory standard.

The State school system does not embrace the whole of the population which comes within the scope of elementary education. Many persons object to send their children to the State schools. Those who do so object principally on religious grounds. The Roman Catholics as a body decline to avail themselves of the public schools. Their views are that religious instruction is a fundamental and indispensable part of the education of the young, and, as a matter of conscience, they can have nothing to do with any schools in which their children cannot be instructed in their own faith. The State, however, recognises no religiou[s] or sectarian teaching in schools, and subsidises no religious body eithe[r] for school purposes or otherwise. State education is free and unsectaria[n] and the public schools are open to all children without distinction.] children within the school ages do not attend the Government school under the Education Act of 1891, they may be instructed privately or i other schools, but they must be educated. The Roman Catholics provi[de] their own schools at their own cost, and these schools are carried on qui

* Superintendent of Census, 1892.

separate and distinct from the public schools. The position taken by the Roman Catholics in their relation to the Government, as far as regards education, is that they make no objection to the inspection of their schools by the State, in order that the authorities may be satisfied that the elementary education imparted in them is equal to that which has been fixed by the regulations. Beyond this they object to any official interference with their schools. They consider that they are entitled to participate in the public expenditure on education in proportion to the number of children in the schools conducted by them who come up to the Government standard. The Legislature, however, has not deemed it advisable to make any concession in that direction.

The Anglican Church has established a large number of schools connected with its parishes in the country districts. The children who attend them are instructed in the tenets of the church to which they belong. St. Peter's Collegiate School, which was established in 1849, is the principal educational institution belonging to the above denomination. Its affairs are managed by a board of governors, of whom the bishop of the diocese is the president. There is also another school in Adelaide of which the bishop is the visitor. They are both largely attended, and in the former, the education provided is of the highest class.

The Wesleyan body has established a high-class school, called the Prince Alfred College. The foundation stone of the building, which is one of the most extensive in the colony, was laid by H.R.H. the Duke of Edinburgh on November 5th, 1867, during his official visit to South Australia. The building is a handsome Elizabethan structure. It was erected by voluntary contributions, and cost over £31,000. The Prince Alfred College has a number of pupils, larger than that attending any similar institution in the colony.

The Bible Christians also have a college, named the Way College. It is largely attended, and the education provided there is quite equal to that of any collegiate establishment in the province

The High School, conducted by the Christian Brothers, founded under the auspices of the late Archbishop of Adelaide, provides for the education of Roman Catholic boys whose friends desire them to obtain a high standard of instruction. There are seven Catholic schools in Adelaide, which are conducted by Dominican Nuns and Sisters of Mercy—three of these are superior schools for girls—besides the College of the Christian Brothers for boys. The aggregate attendance at the Catholic schools in Adelaide is about 900. The education of children in the suburbs of the city and in the country districts of the colony is carried on principally by the Sisters of St. Joseph, except in the South-East, where the Sisters of Mercy are employed. There is also a superior school for girls

at Port Pirie, which is under the charge of the Nuns of the Good Samaritan. The attendance at the Catholic schools in the colony, conducted by members of religious orders, is stated to be about 3,500.

The following figures, derived from that part of the census of 1891 which treats of the education of the people, show the general attendance at the schools in the province :—

Ages of Scholars.		State Schools.	Private Schools.	Private Tuition.	Schools Unspecified.	Not attending School.
Under 5 years	Males	240	277	533	38	21,876
	Females	223	260	535	35	21,175
Between 5 and 6 years	Males	2,610	1,371	953	192	4,053
	Females	2,163	1,401	1,167	228	4,072
Between 7 and 12 years	Males	15,468	4,972	1,108	736	1,926
	Females	13,277	6,195	1,371	718	1,925
Between 13 and 19 years	Males	1,970	1,245	188	131	18,853
	Females	2,266	1,781	410	181	18,266
Totals		38,217	17,502	6,265	2,259	92,146

From these figures it appears that out of 156,389 persons included in the education returns as scholars—

92,146	or	58·93	per cent. did not attend school.
38,217	or	24·42	per cent. attended State schools.
19,761	or	12·65	per cent. attended private schools.
6,265	or	4·00	per cent. were taught privately.
156,389		100·00	

Besides the establishments which have been noticed, there are many superior schools for boys and girls carried on by private teachers, which are well attended, and stand high in public estimation, in consequence of the success of their scholars at the University examinations. From what has gone before it will be seen that ample provision has been made in the province for the education of the children of all classes of colonists. When free education was established in the State schools it was thought that it would prejudice the attendance of children trained in private establishments. It may possibly have produced that effect in some few cases, but not to an extent that has been substantially injurious to private teachers. The general attendance at State schools has been increased, but, as far as can be ascertained, it has not reduced that of scholars who do not avail themselves of the facilities offered by the State schools. In the Catholic schools the attendance has not been affected.

Prior to 1874 there was no University in South Australia. Colonists who desired their sons to pass through the courses of study prescribed in Universities had to send them away from the colony to places where such courses were obtainable. For their daughters there was nothing but such private establishments as the colony afforded, or, if anything of a higher kind were required, to send them away from the province.

Early in 1872 the Baptist, Congregational, and Presbyterian associations had determined to establish a college for the training of young men for the ministry. They commenced work in June of that year. Soon after, Sir Walter Watson Hughes offered the sum of £20,000 to the Union College, as the new institution was named. The Council of that institution determined that the large endowment that had been offered, and the certain attendance of a large number of students, rendered it desirable that the basis of the college should be extended, and that, instead of a college, a University should be established in its place. A meeting of the leading members—of clergymen and laymen—of denominations other than those included in the original college was summoned to confer with the Council on the question of founding a University. The outcome of this conference was the establishment of a University Association in September, 1872, which from that time managed all the business connected with the founding of the University until the passing of the Act of Parliament in 1874. The first meeting of the University Council was held on December 11th, 1874, at which Sir R. D. Hanson, Knt., Chief Justice of the province, was elected Chancellor, and the Right Rev. A. Short, D.D., Anglican Bishop of Adelaide, Vice-Chancellor.

Sir W. W. Hughes' endowment was applied to the founding of two professorships—one for classics and comparative philology and literature, and the second for English language and literature and mental and moral philosophy. Sir W. W. Hughes nominated the first professors to the respective chairs. Shortly after Sir Thomas Elder, G.C.M.G., promised a donation of £20,000, which enabled the Council to found a professorship for mathematics and another of natural science. The Council did not think it advisable to open the University until the arrival of the Elder professors in the colony, but in the meantime they decided to avail themselves of such assistance as the Hughes professors were willing to render, and they arranged for the delivery by those professors of popular lectures upon subjects connected with their chairs, and by other gentlemen whose services were available. These lectures were given in the South Australian Institute, placed at the disposal of the Council by the Governors of the Public Library. In this year the Council created a lectureship of physiology and appointed a lecturer.

In addition to the private endowments which had been bestowed on the University, the Government made a grant to the Council of 50,000 acres of land for revenue purposes, as well as of five acres on North-terrace as a site for the necessary University buildings. They also undertook to subsidise all endowments, to the extent of 5 per cent. per annum, and to contribute to the expense of the buildings as well. The new University was incorporated in 1874, and Royal Letters Patent were granted in March, 1881.

The University consists of a Chancellor, Vice-Chancellor, a Council, and a Senate, and has power to confer degrees in law, medicine, arts, science, and music. All degrees conferred by its authority are entitled to the same rank, precedence, and consideration as fully as if such degrees had been conferred by any University in the United Kingdom. Degrees are also conferred on women. The Government of the University is vested in a Council of twenty members and a Senate. The Senate roll now numbers nearly 200, of whom one-third are graduates of the University. The remainder are graduates of other Universities, who have been admitted *ad eundem gradum*.

The academical year is divided into three terms; the first term begins in March, and the third ends in December. Degrees may be conferred at any time, but are usually given at the annual commemoration, which is held in December. The Chancellor, who prior to election need not necessarily be a member of Council, holds office for five years, and the Vice-Chancellor, who must be a member of the University, holds office for three years. Both appointments are made by the Council. Members of Council hold office for three years, but the warden and clerk of the Council are elected annually by the Senate.

The academical work of the University was commenced in March, 1876. The number of matriculated students who commenced the course was eight, but fifty-two non-graduating students attended the different courses of lectures. The first matriculation examination took place in September, 1876, when ten students passed. At the ordinary examination, held in November, two undergraduates passed the first year of the course for the B.A. degree, and eleven passed in English language and literature and mental and moral philosophy. In December, 1883, a school of law was established, and in March in the following year a lecturer was appointed. Subsequently a professorship of laws was created.

In December, 1883, Sir Thomas Elder offered £10,000 for the establishment of a medical chair; and in March, 1884, the Hon. J. H. Angas endowed a chair of chemistry by a donation of £6,000. The University Council at once provided for the first two years of the medical course, and appointed a lecturer on biology and physiology and a professor of

chemistry. A school of music was established in 1884, mainly through the exertions of His Excellency the Governor, Sir W. F. C. Robinson, G.C.M.G., who obtained promises of subscriptions amounting to £530 per annum for five years, and a professor of music was appointed. Since the term for which the subscriptions were promised expired the chair has been maintained by means of the ordinary revenue of the University, although it is almost self-supporting. In 1886 the Council was enabled to provide for the full medical curriculum, and in March the various lecturers were appointed.

The University buildings were commenced in 1879. The foundation stone was laid on July 30th by His Excellency Lieutenant-General Sir W. F. D. Jervois, G.C.M.G., who also opened them on April, 1882. The cost was £24,736, of which sum £18,014 was furnished by the Government and £1,890 by private subscriptions. The buildings contain all the accommodation necessary for the prosecution of the different studies in which the students are engaged.

The following are the endowments of the University:—Her Majesty's Government, 50,000 acres of country lands and five acres in Adelaide for the site of the University buildings; Sir W. W. Hughes, £20,000; Sir Thomas Elder, £20,000; Sir Thomas Elder, £10,000 for medical school; Sir Thomas Elder, £1,000 for evening classes; Hon. J. H. Angas, £6,000, chair of chemistry; Hon. J. H. Angas, £4,000, Angas Scholarship and Exhibitions; W. Everard, Esq., £1,000, medical scholarship; Stow Prizes and Scholarship (law school), subscription £500; Charles Gosse Lectureship (medical school), subscription £800; J. H. Clark Scholarship (arts school), subscription £500; S.A. Literary Societies' Union (evening classes), £220; Commercial Travellers' Scholarship (arts, science, and music), £150; St. Alban's Scholarship (founded by the Freemasons' Lodge, St. Albans), £150.

In addition to the above Sir Thomas Elder subscribed £300 per annum for five years towards the chair of music, and other persons £230. Sir Thomas Elder also pays yearly the sum of £20 for prizes for physiology. Her Majesty's Government also contributes £800 a year towards the medical school.

The Stow prize is of the value of £15, and may be awarded annually. Every undergraduate who at each of the three examinations for the first, second, and third years of his course obtains the prize is styled the "Stow Scholar," and receives a gold medal. The Howard Clark Scholarship is of the annual value of £50, and is tenable for two years. The scholarships established by the Education Department are awarded annually—three in each year. They are of the value of £50 each, and are tenable for three years. The Angas Engineering Scholarship is

awarded triennially. It is of the value of £200 per annum, and tenable for three years. The Angas Engineering Exhibitions, of which there are three, are of the value of £60 per annum, and are tenable for three years; one is awarded in each year. The Everard Scholarship is of the value of £50, and is awarded annually to the best undergraduate in the fifth year of the M.B. course.

The business of the institution commenced in 1876 in a very unpretending manner, with the arts course and matriculation examinations. Other schools were gradually added, until, within thirteen years of the foundation, graduates in law, medicine, arts, science, and music were able to obtain degrees from the University of Adelaide. The following figures show the progress made in the work of the University. In addition to the former matriculation examination, now known as the senior public examination, there are the preliminary junior public and the senior public examinations, as well as public examinations in the theory and practice of music.

The number of students who presented themselves for the various examinations is given below:—

Junior theory of music	136
" practice of music	143
Senior theory of music	28
" practice of music	61
Preliminary examinations	422
Junior public examination	116
Senior public examinations	96
Higher public examination	44
LL.D. degree	1
LL.B. degree	25
M.D. degree	1
M.B. degree	30
M.A degree	1
B.A. degree	9
B.Sc. degree	12
Mus. Bac. degree	8
	1,133

As a further encouragement to students in the schools of arts and science the Council have provided what is known as the higher public examination, whereby students may take up separate subjects and thus complete the first and second years for the B.A. or the B.Sc. degree. In the third year, however, they must enrol as undergraduates, and either attend lectures or obtain a dispensation from the Council. By this means many who are engaged during the day and cannot attend the ordinary lectures may, by attending the evening classes, qualify in a great measure

for either of the above-mentioned degrees. The Council have also authorised the holding of local examinations, viz., the preliminary, junior public, and senior public examinations, and also public examinations in music in places other than in Adelaide. Advantage is gradually being taken of this concession.

In 1884 various literary societies initiated a movement towards the establishment of evening classes. Sir Thomas Elder gave a donation of £1,000 for the purpose, and £220 was subscribed by the public. These amounts were handed to the University as an endowment fund, and several classes were formed. Although the University authorities, from year to year, announce their willingness to provide instruction in a variety of subjects, there has been no enthusiastic response to their offers. In 1892 provision was made for holding the following classes:—Latin, Greek, mathematics, physics (including practical physics), inorganic chemistry (including practical chemistry), biology, mineralogy, geology, English, French, German, or any other class for which ten students applied. The only classes formed were in physics, chemistry, biology, geology, and a special class in electric engineering.

The following tables show the number of graduating and non-graduating students attending lectures in each year since the formation of the University; also the degrees conferred from 1879 to 1892, inclusive.

Year.	Students.		Year.	Students.	
	Graduating.	Non-graduating.		Graduating.	Non-graduating.
1876	6	2	1885	95	94
1877	18	29	1886	108	89
1878	29	22	1887	110	69
1879	35	35	1888	109	77
1880	44	56	1889	118	198
1881	15	59	1890	122	167
1882	12	99	1891	110	136
1883	47	106	1892	87	117
1884	53	99			

Degrees Conferred.

Years.	M.D.	M.A.	LL.B.	M.B.	B.A.	B. Sc.	Mus. Bac.
1879	—	—	—	—	1	—	—
1880	—	—	—	—	4	—	—
1881	—	—	—	—	1	—	—
1882	—	—	—	—	6	—	—
1883	—	—	—	—	4	—	—
1884	—	—	6	—	3	—	—
1885	—	—	3	—	2	1	—
1886	—	—	8	—	1	—	—
1887	—	—	6	—	5	1*	—
1888	—	—	8	—	9*	1	—
1889	—	2	4	4	1	2	1
1890	—	—	3	2	2	5†	—
1891	1	—	8	5*	3*	4	—
1892	1	1	2	2	3	4	—
	2	3	48	13	45	18	1

Total........................ 130

* 1 Lady. † 4 Ladies.

The professors on the foundation of the University control the following subjects of study:—Classics and comparative philology; English language and literature and mental and moral philosophy; mathematics; natural science; chemistry; music; laws; anatomy. The lecturers, who are not professors, instruct the students in the following branches of study:—Mathematics and physics; laws (2); physiology; principles and practice of medicine and therapeutics; principles and practice of surgery (2); obstetrics and diseases peculiar to women and children; materia medica; ophthalmic surgery; forensic medicine; lunacy; aural surgery; pathological anatomy and operative surgery; clinical medicine (3); and clinical surgery (3).

His Excellency the Governor is *ex officio* visitor to the University. The Hon. S. J. Way, LL.D., Chief Justice of the Supreme Court and Lieutenant-Governor, is Chancellor, and the Venerable Archdeacon Farr, M.A., LL.D., Vice-Chancellor. Mr. C. R. Hodge is registrar.*

In 1886, in consequence of a strong expression of public opinion, the Government, of which Sir John Downer, K.C.M.G., was the head, appointed a board "to inquire into and report upon the best means of developing a general system of technical, including agricultural, education in the province." In 1888 that board recommended that a School of Mines and Industries should be established. The Council of the School

* The information contained in the above account of the University was kindly supplied by this gentleman.

of Mines was appointed in November in that year. It consisted of twelve members, six of whom were nominated by the Government, and the remaining six by the University, the Board of Governors of the Public Library, Museum, and Art Gallery, the Chamber of Manufactures, and the Trades and Labor Council.* "The policy of the council has been one of alliance. They have been anxious wherever possible to utilise the facilities affording by existing institutions for the education the school specially aims at, in order to avoid a duplication of work. It is therefore connected with the chief educational agencies of South Australia. Its students attend lectures at the University and at the School of Design, and it was associated with the Chamber of Manufactures in conducting a series of popular free lectures." The actual work of the school began in March, 1889, but it was not formally opened until June in that year, when the ceremony was performed by His Excellency the Governor.

The year is divided into three terms, and the course of study extends over three years, at the end of which students who pass the required examinations are entitled to receive diplomas as associates. The course for the associateship for the first year includes preliminary mathematics, physics, and chemistry, wood or metal work and drawing (plane and solid, geometric, freehand, model and perspective), in each of which the candidate must pass an examination. In the second year the following are the subjects of study:—(1) Drawing (elementary), machine construction, advanced geometric; (2) geology and mineralogy; (3) wood or metal work; (4) chemistry; (5) assaying; (6) metallurgy and assaying; (7) applied mathematics and mechanics; (8) advanced physics. These are to be taken by students of different departments as follows:—Geology and mineralogy (1, 2, 3, 4, 5), metallurgy and assaying (1, 2, 3, 4, 6), mining (1, 2, 3, 4, 5, 7), and mechanical engineering (1, 3, 7, 8). Of students in the last-mentioned department a knowledge is required of subjects 7 and 8 more extensive than that required from students in any other departments. In the third or further years the candidate *devotes himself to the special subjects of the department in which he* proposes to take his associateship. Candidates may be excused from attending at lectures or examinations, provided they can produce evidence of previous study and examination satisfactory to the education committee.

Besides the technical classes which are included in the foregoing, industrial classes have been formed, which are much resorted to. They include carpentry, fitting and turning, pattern-making and shop drawing, bookbinding, plumbing and gasfitting, a class for engine-drivers, and classes for cookery and dressmaking. These classes assemble in the day-

* Report of the Council of the School of Mines, 1889.

time, and in the evenings to give opportunities of improvement to persons who are engaged during the day.

The School of Mines is increasing in influence and attractiveness. In 1889 the number of students was 348, in 1890 it was 341, and in 1891 it had increased to 468, and in 1892 to 620. The Government has placed at the disposal of the Council of the School of Mines a large portion of the building which was erected for the Jubilee Exhibition, which has been properly sub-divided and suitably fitted up. As far as has been practicable all the necessary fixtures and plant for the various departments of the school have been manufactured on the premises. A museum and library belonging to the school are available for the use of the students.

The substantial value of the instruction imparted at the School of Mines, and the moderate charges which are made, are so thoroughly appreciated by the public that amongst the persons who attend the various courses may be found representatives of almost every class in the community. The following list of the occupations of the students who avail themselves of the opportunities for improvement which the school affords is published in the annual report for 1892. No better evidence could be adduced of the widespread public interest which is taken in the institution :—

Agents	2	Drapers' salesmen	12	Painter	1
Apprentices	57	Dyer	1	Photographers	1
Assayers	5	Electrician	1	Plumbers	12
Baker	1	Engine-drivers	2	Potters	2
Blacksmiths	3	Engineers	34	Saddlers	2
Bookbinders	4	Gardeners	3	Scholars	58
Brassworkers	3	Grocer	1	School teachers	10
Brewer	1	Gunner	1	Sewing machinists	5
Cadets	2	Hairdresser	1	Students	42
Carpenters	8	Ironmoulders	3	Stationers	4
Chemists	6	Ironworkers	4	Storekeepers	4
Clerks	52	Ironmongers	6	Surveyors	4
Cooks	11	Librarian	1	Toilet soapmaker	1
Coachbuilders	15	Masons	3	Warehousemen	9
Dental surgeon	1	Milliners	2	Watchmaker	1
Domestic duties	85	Music teacher	1	Not stated	90
Draughtsmen	13	Nurses	3		
Dressmakers	23	Patternmaker	3		620

The ages of the students who attend the school are little less varied than their occupations. They consist of—

Persons under 16 years of age	117
Between 16 and 20 years of age	253
Between 21 and 25 years of age	139
Between 26 and 30 years of age	44
Between 30 and 45 years of age	56
Above 45 years of age	7
Age not stated	4
	620

The School of Mines and Industries, as it is officially designated, is governed by a council of twelve, of which J. L. Bonython, Esq., J.P., is the chairman. They are appointed by the Governor, and hold office for twelve months, but are eligible for re-appointment. The council was incorporated by Act of Parliament in 1892. The Act of Incorporation contains the usual provisions for conferring powers on corporate bodies, but requires that their accounts shall be subject to audit by the Audit Commissioners.

An agricultural college has been established at Roseworthy, about thirty miles north of Adelaide. This establishment is under the control of the Minister of Education, but is managed by Mr. William Lowrie, M.A., B.Sc., who is the principal. In this institution instruction is given in all branches of practical agriculture, with carpentry, blacksmithing, &c., chemistry and natural science, veterinary science, bookkeeping, botany, viticulture, and surveying. There is a farm attached to the college, but at present it is barely of sufficient extent to meet all requirements. In addition to the farm, special blocks of land in other parts of the colony are under the control of the principal, which are used for the experimental culture of various kinds of farm produce under various conditions of soil, climate, &c. Up to the present time the agricultural college has not met with the support of the cultivators of the soil in the colony to the extent to which its merits should entitle it; but it is growing in popularity and in importance, and its full development is only a matter of time. Besides conducting the routine of the college, and managing the farm and the experimental blocks, the principal, Mr. Lowrie, and Mr. Perkins, the Government Viticulturist, lecture at various times and places in the colony upon subjects connected with farming, vine-growing, and wine-making, and these lectures are of great service to persons engaged in agriculture, &c., who cannot avail themselves of the instruction imparted at the college itself. The report on the Department of Agriculture for 1892 does not give the number of students who receive instruction at the college.

CHAPTER XXII.

No State Church in South Australia—Appointment of Chaplains—Repeal of the Power—State Aid to Religion first Established—Abolition of Grants to Churches—The Religions of the People—Churches in South Australia—Church of England—Roman Catholic Church—Wesleyan Methodist Church—Baptist Church—Presbyterian Church—Primitive Methodists—Bible Christians—Congregationalists—Lutheran Church Other Churches—No Poor Laws in the Colony—Charitable Institutions—The Destitute Board—State Children's Council—The Boarding-Out System—The Adelaide Hospital—Statistics of the Hospital for the Insane—Proportion of the Insane to the Population—Statistics of Insanity in the Colony—Private Charitable Institutions—The Children's Hospital—The Blind, Deaf, and Dumb Asylum—Cottage Homes—The Convalescent Hospital—Home for Incurables—Orphan Home—Roman Catholic Orphanage—Refuges and Female Reformatory—House of Providence—The Prisoners' Aid Association—The Prison Brigade, &c.

The Act of the Imperial Parliament under which South Australia was founded (4 & 5, William IV., cap. 95) did not directly provide for the establishment of a State church in the province, although one of its clauses empowered the Crown "to appoint chaplains and clergymen of the established churches of England and Scotland." Governor Hindmarsh, under its authority, appointed the Rev. C. B. Howard, of the Church of England, to be Colonial Chaplain. The inclusion of such a power in the Act was not regarded by the colonists with satisfaction, and it was omitted from the Act 1 & 2 Victoria, cap. 60, which amended the law of William IV. in many important particulars. Until the year 1847 no attempt was made to provide stipends for ministers, or to afford aid from the State to any of the religious bodies which had become established in the colony. In that year an Ordinance (No. 10 of 1847) was passed by the Governor (Colonel Robe) and his Executive Council which placed the churches in a new position with regard to their relations to the State. That Ordinance proclaimed the expediency of affording aid from the revenue to ministers of religion and missionaries engaged in religious teaching, such aid to be rendered on the following scale:—An allowance of £50 a year to every clergyman whose place of worship contained fifty sittings rented and paid for; 10s. for each sitting beyond that number, also paid for, up to 150; and 5s. for every sitting beyond that number. It was provided, however, that no stipend granted to any clergyman should exceed £200 in any one year. In places where no churches or chapels had been erected, and not less than 100 persons were desirous of securing religious ministrations, £50 a

year would be granted to a missionary or minister, provided that not less than £50 a year was subscribed by the congregation for his support. The Governor could withhold the payment in certain cases. Under this law the Governor could grant lands for church sites and ministers' dwellings, and also money in aid of the erection of churches, &c., under certain conditions with regard to subscriptions, trusteeships, and the audit of accounts of expenditure connected with such buildings. It was under the authority of this Ordinance that the Governor (Colonel Robe) made the gift of an acre of land in Victoria-square, in the centre of the city of Adelaide, as a site for an Anglican cathedral.* The law remained in force until 1851, when it was repealed. The practice of paying religious ministers out of the public funds was never regarded in the colony as politic or desirable. In fact the preponderance of public opinion was absolutely opposed to it, and one of the earliest of the acts of the new Legislative Council (which superseded the old Executive Council, and came into authority in 1851) was to abolish State aid to religion for good and all. The law was in operation for four years, and the amount expended about £4,500 a year. The last payments were made in 1851, and distributed as under:—

	Ministers' Stipends.			In Aid of Buildings.			Totals. †		
	£	s.	d.	£	s.	d.	£	s.	d.
Church of England	707	5	0	572	11	0	1,279	16	0
Roman Catholic Church	626	8	9	261	0	0	887	8	9
Wesleyan Church	452	10	0	1,500	0	0	1,952	10	0
Scotch or Presbyterian	89	5	0	150	0	0	239	5	0
Lutheran	72	9	6	—			72	9	6
	£1,947	18	3	£2,483	11	0	£4,431	9	3

† Obtained from the Audit Office.

The Colonial Chaplain from the beginning had received a fixed salary voted annually on the Estimates. This salary was not affected by the withdrawal of the State grants-in-aid, but was continued until the death of the Very Rev. Dean Farrell, who held the appointment, after which time it ceased to appear on the Estimates laid before Parliament. Since 1851 the churches and religious bodies established in the colony have had no connection with the State, beyond the enrolment of officiating ministers under the Marriage Act to become authorised to celebrate marriages.

* See *ante*, p. 77.

At the time of taking the census in 1891 the number of persons of different religious denominations in the province was ascertained to be:—

Church of England	89,271
Roman Catholic	47,179
Wesleyan	49,159
Lutheran	23,328
Presbyterian	18,206
Congregationalist	11,882
Bible Christian	15,762
Primitive Methodist	11,654
Baptist	17,547
Christian Brethren	465
Methodist New Connexion	39
Unitarian	688
Church of Christ	3,367
Society of Friends	100
Salvation Army	4,356
New Jerusalem Church	168
Jews	840
Protestants (undefined)	5,532
Mohammedans	299
Confucians, &c.	3,884
Other religions	1,719
Object	6,940
Not stated	8,046
Total	320,431

The item in the above list "Other religions" includes the following as returned:—

Agnostics	50	Infidels	9
Atheists	22	Maronites	2
Believers in Christ	4	Memnonist	1
Buddhists	52	Moravians	139
Calvinists	46	Mormons	4
Christadelphians	134	Naturalists	2
Christians	308	Orthodox	4
Christ's Chapel	9	Others (indefinite)	17
Christian Israelites	2	Pagans	20
Christian Socialists	6	Pantheists	3
Church of God	6	Plymouth Brethren	111
Cosmopolitans	3	Rationalists	4
Deists	14	Reformers	7
Evangelists	60	Secularists	12
Exclusive Brethren	8	Seventh-day Adventists	203
Free Church	21	Shaker	1
Free Methodists	5	Shintoists	24
Freethinkers	258	Spiritualists	37
Followers of Christ	8	Theosophists	9
Gospel Meeting	11	Town (City) Mission	16
Greek Church	44	Welsh Church	27
Huguenot	2	Zoarastrians	2
Hussite	1	Zwinglian	1

The Church of England, whose adherents are more numerous than those of any other church in the colony—constituting 27·86 per cent. of the population—is presided over by a bishop, the Right Rev. G. W.

Kennion, D.D. There are also a dean, an archdeacon, and six canons, besides seventy-three clergymen, to supply the wants of the various parishes in the colony. The general affairs of the diocese are managed by a synod, presided over by the bishop, consisting of the clergy and lay representatives from the several parishes. Attached to the diocese there is a theological college for the training of persons desirous of entering the church and numerous ordinary schools, besides Sunday schools in connection with the local churches. These Sunday schools are attended by 10,920 scholars, who are instructed by 295 male and 680 female teachers. According to the returns for 1892, the Church of England had 150 churches, or chapels, and thirty-two other buildings used for public worship.

In the organisation of the Roman Catholic Church South Australia is an ecclesiastical province. It is divided into two sees—the Archdiocese of Adelaide and the Bishopric of Port Augusta. The Archdiocese of Adelaide extends north to the Burra, east to the Victorian boundary—including the country south of the Murray—and west to Banks' Peninsula, as far as Talia. It contains 64 churches and 12 other places used for Divine service, and 36 schools, attended by 3,500 scholars. These are all taught by members of religious orders. The Bishoprics of Port Augusta, Perth (Western Australia), Victoria, in Northern Australia (at present vacant), and the Vicariate Apostolic of Palmerston are suffragan to the archdiocese. The religious communities established there are the Society of Jesus, the Carmelites, and the Christian Brothers, as also the Dominicans (nuns), the Sisters of St. Joseph, and the Sisters of Mercy. The education of the Catholic youth of both sexes is entrusted to the four last-named societies. An ecclesiastical seminary is established at Sevenhills College, ninety miles north of Adelaide, under the direction of the Jesuit fathers. The Diocese of Port Augusta takes in the rest of the colony, south as far as the Burra (which it includes), east to the Victorian border, and west all the country above Talia to the West Australian boundary. In this diocese there are 30 churches, 16 clergymen, and 16 schools, attended by 920 scholars. The schools are conducted by the Sisters of St. Joseph, and there is a superior school for girls at Port Pirie, under the charge of the Nuns of the Good Samaritan. The churches are served chiefly by the Jesuit fathers, whose headquarters are at Sevenhills.

The Wesleyan Methodist Church is governed by the conference. This denomination has 80 officiating ministers; 275 churches; other preaching places, 106; local preachers, 440; Sabbath school teachers, 2,674; class leaders, 330; church members, 7,774; on trial for membership, 214; junior members, 770; Sabbath school scholars, 22,299; and

attendants at public worship, 51,340 (1892.) For the purposes of this church the colony is divided into five districts, besides the colony of Western Australia, which is at present under the authority of Conference of South Australia.

The Baptists have 57 churches, 4,128 members of churches, 34 ministers, 55 Sunday schools, 570 teachers, and 6,193 scholars: they have also seven preaching stations. The South Australian Baptist Association is incorporated. Connected with this denomination is a missionary society, sustaining four native missionaries and five European ladies as zenana missionaries in India, besides one European missionary. The association has a denominational magazine, an aged ministers' and building fund, and a jubilee fund.

The Presbyterian Church of South Australia is governed by a general assembly, which meets in March and September in each year. There are three presbyteries—one at Adelaide, one at Onkaparinga, and one at Belalie. This church has 22 churches, 12 stations, 28 Sabbath schools, 257 teachers, and 2,204 scholars; the churches accommodate 6,000 persons. There is also a Free Presbyterian Church with six places of worship.

The Primitive Methodists have 117 chapels, 12 other preaching places, 23 parsonages, 31 ministers, 2,832 members, 196 local preachers, 93 Sabbath schools, 811 teachers, 6,050 scholars, 77 class leaders, and 12,342 adherents. It is divided into twenty-eight circuits.

The Bible Christians have 133 chapels, which contain about 19,000 sittings, 15 meeting rooms with 600 sittings, 42 ministers, 212 local preachers, 108 Sunday schools, 874 teachers, 6,052 scholars, and 3,080 members in church fellowship. For the purposes of this body the colony is divided into five districts, which are sub-divided into thirty-two circuits. Its affairs are controlled by a conference, which meets in February in each year, under which there are five committees—the general connexional committee, the stationing committee, and the missionary committee, the trust debts committee, and a book committee. The Way College belongs to this religious organisation.

The Congregationalists possess 47 places of worship with 10,550 sittings, 24 rooms with 3,835 sittings. The total number of places where worship is held by Independents is 67, providing sittings for 14,415 attendants. They have 43 Sunday schools, 498 teachers, and 4,974 scholars. The Congregational Union and Home Mission for assisting smaller churches is incorporated, as are also the Congregational Chapel Building Society, the Ministers' Provident Fund, the Parkin Trust, and the Parkin Congregational Mission for providing annuities for widows, and eventually for bush mission purposes.

The members of the German Evangelical Lutheran Church possess 90 places of worship, which afford sittings for about 12,000 persons; 60 of these are churches or chapels with sittings, the rest school or other rooms used for worship. They have 40 schools, 45 teachers and 1,350 scholars attending denominational day schools in connection with the various chapels. The Lutherans have two missions to the aborigines, one at the Finke river, in the Northern Territory, and the other at Cooper's Creek, in Central Australia.

The United Free Church of South Australia has 10 places of worship with about 1,000 attendants, 82 Sunday school teachers, and 900 scholars. This association is incorporated.

The Church of Christ has 31 chapels and places for worship and the preaching of the gospel, which give accommodation for 4,220 persons. They have 20 Sunday schools, over 1,800 scholars, and 2,199 church members. This church does not recognise any distinction between the clergy and laity, and does not make use of the title of "reverend" as belonging to their ministers.

The Unitarian Christian Church has 3 churches, the New Jerusalem Church 1, and the Society of Friends 2. There is a Hebrew congregation in South Australia, whose synagogue is in Adelaide; attached to it is a Hebrew Sabbath school.

The above includes the chief religious organisations in South Australia, as far as they are known and their establishments publicly recorded. Many of these ecclesiastical bodies have philanthropic or charitable institutions, which are either conducted by them or are in connection with them.

Poor laws such as exist in the United Kingdom are not established in South Australia. There are no poor rates. The funds required for the relief of the destitute are furnished from the general revenue. The control of all matters relating to the destitute poor is vested in a board, acting under the authority of a statute "The Destitute Persons Relief Act," No. 210 of 1881. The board consists of a chairman and five other members to form a board of advice, all of whom are appointed by the Governor. The chairman is the chief executive officer, and is charged with the administration of all the powers vested in the board, subject to its advice and control, and pursuant to the regulations of the public service. The Destitute Board has the administration of all funds voted by Parliament for the relief of the destitute poor, or given or left to them by the benevolent; the care and management of all places for the reception and relief of destitute persons, of all children born in any establishment under its control, and of all other illegitimate children nursed by any foster-mother outside of such establishment, and to grant

licences to suitable persons to act as foster-mothers. It has also authority for the ordering of the persons and property of destitute persons and children for so long as they may be inmates of any institution under the control of the board. The relations of any poor or destitute persons who are not able to support themselves are primarily liable for their care and maintenance. This liability extends to the father, grandfather, mother, grandmother, child, or grandchild of any such person, who, if able to do so, can be compelled to maintain them. Husbands are liable for the support of their wives' children, whether such children be legitimate or not, until they are 16 years of age, if boys, or 18, if girls. The cost of maintaining destitute persons may be enforced against their relations at any time within six years. All applications for relief for persons in the city of Adelaide are made to the Destitute Board, which, after inquiry, deals with each case on its merits. Relief is granted in the country on application to chairmen of district councils, subject to approval by the board, or by representing officers in various centres of population. Aged and infirm persons, and sick and deserted children, are received into the Destitute Asylum, but no able-bodied persons are admitted at any time. Male and female adults may receive out-door relief in cases of sickness on a medical certificate. Widows with families in certain cases are relieved by the board, as also women with families who have been deserted by their husbands, or whose husbands are away in search of employment or detained in the Lunatic Asylum, or incarcerated in gaol. The out-door relief consists of rations, and in some cases clothing. According to the report of the Destitute Board, 4,156 persons were relieved during 1892. This gives a proportion to the actual population for the year of 1·25 per cent. The expenditure for the year on the relief of the poor was £16,518, being at the rate of 11d. per head of the total population.

The figures underneath show the number of persons relieved, the total cost, the cost per head, and the ratio to the population for the five years ending in 1892.

Year.	Population.	Persons Relieved.	Per Cent of Population.	Total Cost.	Cost per Head.	Cost per Head of Population.
				£	£ s. d.	s. d.
1888	306,641	7,428	2·42	23,789	3 4 0	1 6½
1889	311,112	6,014	1·93	21,001	3 9 5¼	1 7
1890	314,195	4,979	1·58	18,702	3 15 1¼	1 2¼
1891	320,723	4,216	1·31	16,924	4 0 3¼	1 0½
1892	331,721	4,156	1·25	16,518	3 19 6½	0 11

The amount of destitution, as may be seen from the above, is not great in South Australia, nor is the condition of the destitute nearly

as bad as it is in larger Australian capitals. The greatest number of recipients of relief are children whose fathers have died or abandoned their families. In all cases where a husband has left his wife and children unprovided for the Destitute Board prosecutes, if the person can be found, wife desertion being a misdemeanor, and punishable with imprisonment for twelve months.

Previous to the year 1886 the Destitute Board took charge of all destitute, neglected, or deserted children, and the Industrial and Reformatory Schools were under their control. The Industrial School was the receptacle of all children of the classes named above. The Reformatory School received only boys and girls, under the ages of 16 and 18 respectively, who had been convicted of offences by justices of the peace or other magistrates, and committed to the school by them. These two schools were kept entirely distinct. The powers formerly exercised by the board were transferred in 1886 to the State Children's Council, created by an Act of the colonial Legislature (387 of 1886). The classes which fall within their jurisdiction are destitute children, neglected children, and convicted children. The first class consists of such as have no sufficient means of subsistence, or whose parents are unable to maintain them. The second class includes children found begging, or wandering about streets, or sleeping in the open air, or who have no settled places of abode, those who may be found in brothels, or with any known prostitutes, whether their mothers or not, or who associate or live with persons, not their parents, known as reputed thieves or drunkards, or who have been convicted of vagrancy, those who are convicted of petty offences, those who are uncontrollable by their parents, who wish them to be sent to the Industrial or Reformatory School, and illegitimate children whose mothers or friends are not in a position to maintain them. The last class is composed solely of children who have been convicted of offences punishable with imprisonment and committed to the schools by magistrates. The State Children's Council consists of twelve honorary members (ladies as well as gentlemen), appointed by the Governor, who have power to board out, licence out to service, or to apprentice any children who come under their control, and to take all necessary steps and precautions to secure their proper care, instruction, and treatment. The boarding-out system is followed by the council as far as circumstances will allow, and is generally successful in its operation. The children are removed from the surroundings of a pauper establishment, and are brought within the influences of home life as far as possible. When children are placed out or apprenticed they are visited frequently by some member of the council, or some other duly authorised person, who reports upon the

conduct of the children and on the condition of the homes in which they are living. These visits must take place at least once in every four months. According to the last report of the council 945 children had been placed out. They were disposed of in the following way:—573 boarded out; 235 licensed to service; 36 adopted; 11 placed out without subsidy; 58 with parents or relatives on probation; 1 apprenticed; 7 in hospital; 2 in the Blind Asylum; 1 in the Lunatic Asylum; 1 in the Lying-in Home; 5 (boys) absconded; and 10 out of the colony with their guardians. Every effort possible is made to have the children regularly visited and their homes inspected, with the result that in the year 1892-3 6,722 reports were received. The states of the children and homes respectively were reported and classified as follows:—

	Conduct of Children.	Condition of Homes.
Good	4,814	5,040
Fair	203	51
Indifferent	75	12
Bad	18	7
	5,110	5,110

As far as these reports go, the results of the placing-out system must be regarded as satisfactory, and that the interests of the children are actively watched is certain from the number of transfers and removals of children which have taken place during the year. These amounted to 453. The reasons assigned for the changes which took place are misconduct of children, unsuitability of the homes, mutual dissatisfaction between the children and their guardians, expiration of terms, ill health, and other reasons not specified. The law which empowers the council to take charge of children who otherwise must become a trouble, if not a source of danger to the community, carefully regards their religious as well as their secular welfare. Justices of the peace, whenever committing any child to the care of the council, are required to inform themselves as fully as they can of the age and religion of the child, and to insert in the mandate for detaining it a statement of its age and religion, and in boarding or placing out children regard is had to the religion of the persons with whom they may be placed, so that the children shall not be unduly influenced. When children are licensed out for service or apprenticed, the wages to which they become entitled are deposited in the Savings Bank to their credit; but those deposits are not allowed to be withdrawn by them without the consent of the chairman of the council until after the expiration of the term of the licence or apprentice-

ship, or until they are 18 years of age. Before placing out children strict inquiries are made by the council into the characters and circumstances of the persons to whom they may be entrusted, and every application for a child must be accompanied by a certificate from a justice of the peace or a clergyman, to the effect that he is acquainted with the applicant, her husband, and family; that he can recommend them as being persons of sober habits and kindly character, and fit persons to be entrusted with the physical and moral training of children. Some cases occur, in which, as the council state in their report, the justices or clergymen do not make proper inquiries before signing the certificates, but the careful investigations made by the council and its officers are generally sufficient to prevent any wrong which might follow upon the adoption of such certificates as conclusive. The average number of children under the control of the council for the year was 1,041. The total cost of the department was £13,575 3s. 6d., made up as follows:—Industrial School, £721 7s.; Girls' Reformatory, £1,023 3s. 1d.; Boys' Reformatory, £1,752 8s. 1d.; placing out and supervision of children placed out, £1,365 2s. 5d.; subsidies for boarded-out children, £7,104 10s. 11d.; and expenses of administration, £1,703 10s. 3d. The cost per head per week was 1s. ½d. The funds of the council are derived from the general revenue, and the sale of the produce from the reformatory, which amounted to £412 19s. 8d. The number of children placed out was 911; in the Industrial School, 43; in the Girls' Reformatory, 29; and in the Boys' Reformatory, 58. The proportion of criminal children is small, being 8·35 per cent. of the total number under the control of the council, or 0·68 per cent. of the total number of children in the colony under fifteen years of age. It is intended to introduce a new Bill into Parliament to regulate the control of State children, and to enlarge the powers of the council.

The Adelaide Hospital was established by the Government at a very early stage of the colony's existence, and for many years it was a branch of the public service conducted by the Colonial Surgeon for the time being, with an assistant, and the occasional aid of private medical practitioners. It is now managed by a board appointed by the Governor, which at present consists of sixteen members, one-half of whom are physicians or surgeons, and the remainder laymen. The income of the institution is drawn from the general revenue and from private contributions. It is essentially a charitable institution, the patients being restricted to persons who are unable to pay for medical attendance. Exceptions to this rule are made in the cases of sailors and some few other persons whose means will not enable them to procure such medical attendance as their cases require in any other way, who may be admitted on pay-

ment in advance of maintenance fees for thirty days, and giving an agreement to the secretary to the board, guaranteed by the person sending the recommendation, for payment at a fixed rate of 3s. per diem for any further time that they remain in the hospital. Subscribers of £2 annually have the privilege of recommending one indoor patient during the year; of £5 annually, three indoor patients for the year; and of £10 annually, that of having one patient always in the hospital. Life subscribers are entitled to the same privileges in proportion to their donations, the contributions being estimated as annual subscriptions of one-tenth of the amount. The hospital contains 250 beds; a new wing has recently been added, which gives accommodation for seventy more. There are four resident house surgeons, two of whom are always in attendance, and a number of honorary physicians and surgeons, chosen from the leading members of the medical profession in the colony. Attached to the hospital there is a school of medicine in connection with the Adelaide University. For the outdoor relief of necessitous persons there is a dispensary at which out-patients are treated. In addition to the nomination of in-patients, contributors to the funds of the hospital of £2 annually may recommend six patients for relief at the dispensary; of £5, twelve patients; and of £10, fifteen patients. Severe accidents and cases of real emergency may be admitted at all times by the resident medical officer on duty. The number of cases admitted into the hospital in 1892 was 2,251, which shows a percentage of 0·67 to the total population. The average daily number of patients in hospital for the year was 195, the largest number known since 1869. The following gives the statistics of the hospital for the last ten years :—

Year.	No of Cases.	No of Deaths.	Cost per Patient.	Outdoor Patients.	Annual Expenditure.
			£ s. d.		£ s. d.
1883	2,119	174	58 14 2	7,661	10,548 16 3
1884	2,129	159	56 6 6	8,218	10,693 3 9
1885	2,024	153	53 4 8	7,445	9,755 11 0
1886	1,878	164	51 14 10¾	10,320	9,679 8 6
1887	1,895	144	51 16 10	10,554	9,686 13 11
1888	2,003	180	49 13 3¾	10,983	9,875 11 7
1889	2,075	169	64 5 3	13,046	12,877 18 6
1890	2,026	191	63 4 10½	12,877	12,416 4 2
1891	2,147	205	66 7 10¾	13,003	13,6[illegible]9 18 5
1892	2,251	193	66 17 10½	12,495	14,011 10 11

The Hospital for the Insane in South Australia is entirely under the management and control of the Government, there being no private lunatic asylums in the colony. All the insane, therefore, who are not taken care of by their friends are sent to the general lunatic asylum for safe custody and treatment. All the inmates except pauper lunatics

must be paid for, the charge for maintenance varying according to the special circumstances of each case. There are two asylums under the charge of the Colonial Surgeon (Dr. A. Paterson), one on North-terrace, the other at Parkside, under the care of Dr. W. L. Cleland, where criminal lunatics and dangerous patients are confined. There is a board of official visitors appointed by the Governor, who may visit at any time and who report to the Chief Secretary, as they may think desirable, any matters which, in their opinion, require special notice. In addition to these, all justices of the peace are authorised to visit the asylums at any hour of the day or night, and to see any patient they may wish. In case the application to see a patient should not be complied with, the authorities must enter in a book kept for the purpose a statement of the reason for the refusal. Pauper lunatics may be committed to the lunatic asylums upon a medical certificate by any justice of the peace. The charge for maintaining lunatics may be enforced by the order of two justices against their estate or against their relations who may be legally liable for their support.

The number of persons who become inmates of the Hospital for the Insane, taken in proportion to the population, does not appear unfavorable when brought into comparison with the proportion of insane persons in other countries. According to the report of the Colonial Surgeon there were 822 persons in the asylums at the close of 1892, which gives a proportion to the population of South Australia of 2·42 per 1,000. This is lower than that in any of the Australian colonies except Tasmania, where it is 2·00 per 1,000. The most recent available returns from the United Kingdom give the proportion there as—England, 2·88; Scotland, 2·91; and Ireland, 3·16 per 1,000. The following are the lunacy statistics of the colony for the last ten years:—

Year.	Population.*	No. in Asylum.†	Per 1,000 of Population.	Admitted during Year.	Discharged during Year.	Died.	Recovered.	Improved.	Not Improved.	Not Insane.
1883	310,022	671	2·16	213	114	63	63	51	—	—
1884	317,064	684	2·16	209	132	64	83	44	4	1
1885	315,579	727	2·30	219	131	45	89	39	3	—
1886	313,467	744	2·37	207	122	68	74	46	2	—
1887	317,134	750	2·36	192	101	85	56	45	—	—
1888	315,372	758	2·40	190	132	50	73	57	2	—
1889	319,676	790	2·47	218	132	54	67	64	1	—
1890 ..	322,614	817	2·53	239	149	63	80	68	1	—
1891	328,755	815	2·48	224	136	90	68	68	—	—
1892	339,488	822	2·42	214	138	69	80	54	4	—

* Including Northern Territory. † At the end of each year.

The ratio of the admissions to the population fluctuates from year to year in an inexplicable way. Males always preponderate over females. Habits of intemperance, privation, and exposure to the solitude of bush life probably account for the greater susceptibility of the male sex to mental disease.

The actual expenditure on lunatic asylums for the last ten years appears underneath :—

	£	s.	d.
1883	21,161	18	10
1884	23,941	18	9
1885	25,346	11	5
1886	25,033	6	11
1887	22,067	18	5
1888	21,838	19	0
1889	21,644	5	4
1890	22,410	3	11
1891	22,971	4	9
1892	24,045	1	3
	£230,461	8	7

The cost of each inmate, reckoning on the basis of the average annual number resident in the asylum for the ten years, is nearly £31.

The patients are employed as much as possible. The men work at gardening, tailoring, hair-teasing, white-washing and painting, and general ward work, and the women do needle work and the various duties of the laundry. All the clothing for the women and nearly all the clothing of the men are made in the institution, and fruit and vegetables of all kinds are raised in more than sufficient quantity to meet the wants of the establishments on North-terrace and at Parkside. Various amusements are provided for the patients. They have garden parties within the grounds, musical performances by bands, theatrical performances by professional artists, and concerts by amateurs of both sexes. Some of them are occasionally taken to the theatre; they also go on walking excursions into the country, to the races, and to the Zoological Gardens. These are in addition to fortnightly dances and other ordinary amusements. On one occasion a play was arranged to be acted in the open air, and the result was very satisfactory to the authorities of the asylum as well as to the patients who took part in the performance.

The Destitute Asylum, the Adelaide Hospital, the State Children's Department, and the Hospital for the Insane comprise all the charitable institutions which are under the control of the Government and supported by public money. There are, however, other establishments, such as hospitals, established in places in the country, which receive Government assistance, and the subsidies paid to them are included in the general hospital expenditure.

The following table sets out the amounts paid by the Government for the charitable institutions named in it for ten years ending in 1892:—

Year.	Aborigines.			Cemeteries			Board of Health and Quarantine.			Medical and Hospitals.			Lunatic Asylums.			Destitute Poor and State Children.			Total.		
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
1882-3	6,289	5	11	970	14	4	2,768	12	8	20,053	4	2	21,161	18	10	27,777	17	8	79,021	13	7
1883-4 ..	5,728	6	2	987	16	0	2,780	11	7	23,265	16	2	23,941	18	9	30,104	1	5	86,808	10	1
1884 5	5,202	0	8	987	14	11	3,254	4	2	22,132	11	8	25,346	11	5	32,025	13	3	88,968	16	1
1885-6 ..	5,100	18	5	979	19	9	2,937	1	1	20,854	14	6	25,033	6	11	30,848	12	11	85,754	13	7
1886-7 ..	5,103	5	1	1,080	4	9	2,878	19	9	21,518	8	3	22,067	18	5	33,961	9	1	86,610	5	4
1887-8	5,104	9	8	923	5	10	2,754	8	2	21,604	7	10	21,838	19	0	34,184	11	7	86,410	2	1
1878-9	5,328	18	3	923	6	6	2,563	12	2	22,333	13	11	21,644	5	4	31,715	17	7	84,509	13	9
1889-90	5,228	5	5	920	4	2	2,760	0	9	21,842	9	8	22,410	3	11	30,254	5	9	83,415	9	8
1890-91	4,840	14	2	930	14	8	2,125	19	5	22,622	4	3	22,971	4	9	29,027	16	4	82,518	13	7
1891-2	5,002	1	9	925	17	1	2,246	9	5	24,888	6	3	24,045	1	3	29,437	1	2	86,544	16	11
Total	52,928	5	6	9,629	18	0	27,069	19	2	221,135	16	8	230,461	8	7	309,337	6	9	850,562	14	8

The expenditure on charitable institutions, as shown in the table, amounted in 1892 to £86,544 16s. 11d., which is at the rate of 5s. 2½d. per head of the population for the year. For the ten years ending at the same date the average annual expenditure was 5s. 5½d. per head.

The public establishments which has been mentioned embrace all the charitable foundations which have been created by the Government and are dependent upon it, entirely or nearly so, for support. In the principal country and seaport towns branch hospitals are established, which are subsidised by the Government, for the treatment of local sick and indigent persons. These subsidies are all paid out of the general vote for hospitals annually agreed to by Parliament. Cases of lunacy which occur in the country are sent to Adelaide for treatment at the asylum there.

Several other charitable institutions have been founded by private exertions to provide for cases which, though to a certain extent are of public concern, are not altogether such as the Government could properly be called upon to provide for. Amongst these are the Children's Hospital, the Institution for the Blind, Deaf, and Dumb, the Orphan Home, the Catholic Orphanage, the Home for Incurables, and many others, the inmates of which could otherwise be dealt with only by the agency of the Destitute Board, whose regulations are not adapted to the special requirements of such persons. The most important of these is the Children's Hospital and training school for nurses It is situated in a healthy situation in North Adelaide, in an elegant and commodious building provided with all the appliances necessary for the work to which it is applied. It was founded by private persons who wished to provide for poor and other sick children attendance and comfort more suited to their condition than they could obtain in a public general hospital. It is supported by voluntary subscriptions and donations, besides a subsidy of £1,000 annually voted by Parliament. The building at present contains forty-three cots for patients, all of which are generally occupied. The hospital is divided into four general wards, two special wards, an ophthalmic ward, and a contagious ward. The want of better accommodation for out-patients and for the treatment of contagious diseases which had for some time pressed itself on the attention of the board of management is now being supplied by new buildings, which are being erected at the cost of the Hon. J. H. Angas, M.L.C. These additions will enable the board greatly to extend its sphere of usefulness. The out-of-door department supplies the needs of a wide circle of poor families in the cure of minor or temporary ailments, or where the cases can be treated by weekly consultations with the medical officers. In 1892 297 children were admitted as in-patients,

being sixty less than in the preceding year, but the number of out-patients increased from 2,295 to 3,005. The hospital has been established for about seventeen years. The training school for nurses, which is connected with the hospital, has proved to be of great public benefit. Before it was established trained nurses were scarcely obtainable in the colony. The facilities which the Children's Hospital offer to those who desire to undertake the duties of nursing are so much appreciated that more persons apply for positions than can be received. Weekly lectures are given to the nurses by the resident medical officer, and quarterly examinations are held, and clinical instruction is imparted in the wards by the superintendent of nurses and others in charge to all such as are under training. Certificates are granted to nurses who pass the examination to the satisfaction of the board of examiners. The office of house surgeon is filled by Miss Laura Fowler, M.B. & Ch.B., the first lady who received the qualification of a medical practitioner from the Adelaide University.

The Blind, Deaf, and Dumb Asylum was founded in 1874 by the late Mr. William Townsend, M.P. The objects of the institution are to provide the benefits of education and a home, and, as far as practicable, the advancement in life of blind, deaf, and dumb children. Children afflicted in this way, between the ages of six and twelve years, whose parents are resident in the colony, are admissible as inmates, irrespective of creed or national distinction. Children deficient in intellect, subject to fits, or contagious or offensive diseases are not eligible subjects for admission. In ordinary cases the candidates must not be under six nor more than twelve years, except in special cases, when the rule may be relaxed. Children whose parents are unable to pay are educated and maintained gratuitously, and, when their education is completed, are apprenticed to suitable trades, as far as the funds will permit. The deaf and dumb children are trained by the sign and manual method. There is an industrial school for the blind in North Adelaide, to which pupils are sent. The institution has its establishment at Brighton, near the sea. It is a handsome and well appointed building, with a considerable acreage of land attached to it, where gardening and farm work are carried on. As the cultivation of the land extends the inmates will be able to supply fruit, vegetables, milk, and butter sufficient for the establishment. The number of persons who have received the benefits of the institution is about 120. The asylum is supported by subscriptions, donations, and fees for maintenance, supplemented by a Government grant of £800.

Less prominent, but not less useful in their degree, are the Cottage Homes (incorporated), which provide homes in their old age for infirm poor persons. The society has three establishments—one in North Adelaide,

which contains thirty-eight inmates; one at Brompton Park, with eight; and one at Glenelg, with eleven inmates. It is supported by voluntary donations and subscriptions. The Convalescent Hospital was founded to assist patients discharged from hospital to a quick and full recovery; it also helps poor patients with small gifts of money to enable them to return to work. This society has a comfortable and picturesque establishment at the Semaphore, on the coast. It is supported by voluntary subscriptions. The Home for Incurables has its head quarters at Fullarton, near the hills to the east of the city. This society is maintained in operation by voluntary contributions. The Orphan Home, for the reception and training of orphan girls, is established in Adelaide, and is conducted by a ladies' committee in connection with the Church of England. The Roman Catholic Orphanage is situated at Goodwood, and is under the charge of the Sisters of Mercy. The children admitted to this charity must be the lawful children of Roman Catholic parents. In the suburbs of Adelaide there are three institutions for the reception of women of the unfortunate class—one at Norwood (Protestant); one (Roman Catholic), also at Norwood, under the Sisters of St. Joseph; and one at Walkerville (Church of England). The Roman Catholics have also a place of reception called The House of Providence, in which servants out of place and other deserving women find temporary homes. There is also a Female Reformatory carried on by various nonconformist bodies. All of these charities are carried on without any assistance from the public purse.

One of the most truly charitable and useful amongst the various benevolent societies in operation in South Australia is the Prisoners' Aid Association. The sole object that this society has in view is the aiding of discharged prisoners to make a new start in life. The committee of the society are in constant communication with the various prison authorities, and make themselves acquainted with the character and history of those who are on the eve of discharge, so as to enable them to find them employment, and open out a future to them where the past will be forgotten. This society has been the means of helping scores of prisoners to start new lives, and some of them have done remarkably well, though, of course, there has been a certain proportion of failures. The work of the society is carried on without publicity, and has done an amount of excellent work, the value of which to society can hardly be estimated. The Salvation Army has lately started a prison brigade. Their operations are principally, if not entirely, confined to the Adelaide Gaol and its inmates. They meet prisoners at the gates on their discharge, and take them (male or female, as the case may be) to an establishment devoted to the re-

ception of such persons, and give them an opportunity of reforming and preparing themselves to earn an honest livelihood. There are many other societies and institutions whose members devote their energies to the relief of the ever varying forms of distress and suffering which are found in all communities. The most prominent have been mentioned above. Although poverty in South Australia is not so severely felt nor so widely spread as it is in other Australian cities, still it presses hardly on many who are unable to help themselves. It will be seen from what has been recorded above that the colony generally has not overlooked the necessities of those who have met with adversity.

CHAPTER XXIII.

GENERAL MATTERS—MUNICIPAL GOVERNMENT—CORPORATE TOWNS—THEIR CONSTITUTION AND POWERS—NUMBER OF TOWNS—RECEIPTS AND EXPENDITURE —ASSESSMENTS — THE DISTRICT COUNCILS — HOW CONSTITUTED — THEIR POWERS—RECEIPTS AND EXPENDITURE—THE CITY OF ADELAIDE—GENERAL DESCRIPTION—STREETS, BUILDINGS, &c.—PLACES OF WORSHIP—PLACES OF AMUSEMENT—MERCANTILE INSTITUTIONS, BANKS, &c.—SCIENTIFIC SOCIETIES —FIRE BRIGADES—WATERING PLACES NEAR ADELAIDE AND ON THE COAST—PORT ELLIOT, VICTOR HARBOR, PORT LINCOLN, KANGAROO ISLAND—COLONIAL DEFENCES—NAVAL FORCES—LOCAL MILITARY FORCES—RESERVES THE RENMARK IRRIGATION COLONY.

SEVERAL matters illustrative of the progress of the colony which have not been mentioned in the foregoing pages are brought under the reader's notice in this chapter. The first in importance is municipal government. There are two systems of local government in operation in South Australia—one carried on under the Municipal Corporations Act, the other under the District Councils Act. The first is framed so as to meet the conditions and requirements of large and compact centres of population; the second is adapted to the circumstances of rural districts, whose interests are different and where population is scattered. The powers conferred upon the corporations are more extensive than those which have been prescribed for the district councils. The difference between them lies chiefly in the extent of their powers to make by-laws and the operation within corporate limits of special statutes, such as the Building Act, which would be inapplicable in country places, where dwellings and other buildings are not massed together as they are in towns. Corporations are constituted in the first instance by proclamation in the *Government Gazette* under the hand of the Governor. A corporation at the time of proclamation is divided into wards, to be represented by two councillors for each ward, who, as well as the mayor, are appointed by the proclamation and retain office for one year. After the first election has taken place, one councillor for each ward retires annually, but he may be re-elected. The election of councillors takes place by the several wards in which only the ratepayers of such wards are entitled to vote, but the mayor and the aldermen, where there are any, are elected by the whole of the burgesses voting as one district. Every person of full age may be elected either as mayor, alderman, or councillor in any corporation, except a person absent from the province at the time of the election who has not consented in writing to be nominated, a female, a minor, or an uncertificated insolvent. Vacancies in the offices of mayor, alderman, and

councillor are created by death, lunacy, insolvency, assignment of estate, or composition with creditors for less than 20s. in pound. Mayors receive such salaries as may be voted to them by the councils out of the funds of the corporations, but aldermen and councillors receive no remuneration for their services. Auditors for corporations are elected by the ratepayers at the time of the election of mayors and councillors, and are paid by fees fixed by the council and taken from the corporation funds. One of them retires annually, but he may be re-elected. The causes which create vacancies in the auditorships are the same as those which affect the tenure of office of mayors, aldermen, and councillors, besides absence from the colony at the time of audit, failure to attend the audit after receipt of notice in writing, or the order of any duly authorised court or justices declaring the office vacant. The polls are open on the days of election from 8 a.m. till 7 p.m., and the elections take place by ballot. All persons owning or occupying ratable property in the municipality, except aliens and persons in receipt of public relief or alms, are entitled to vote as ratepayers, but a ratepayer is entitled to record one vote only for the property in the ward for which he is rated. Persons who have not paid their rates at the time of an election are not entitled to vote, but if the landlord of any ratable property in a corporate town has agreed to pay the municipal rates, and has made default therein, the occupier of the premises is not deprived of his vote by reason of such default if he produces a receipt from his landlord for the payment of all the rent due at the time of voting. In the towns where there are aldermen no person is entitled to be elected to the office of mayor unless he shall have previously served in a council for one year. At present the only municipality which has aldermen is the city of Adelaide. The position of alderman carries with it no privileges or functions beyond those which pertain to the office of a town councillor. The aldermen are appointed by proclamation by the Governor in the *Government Gazette*, following on a petition in favor of such proclamation from the council of the municipality concerned. The petition for the addition of aldermen cannot be presented until a poll of the citizens has been taken, affirming a proposition in favor of this part of the Municipal Corporations Act being applied to the municipality, and of the intention to hold which one month's previous public notice shall have been given by the council, nor unless the petition be accompanied by a certificate, under the hands of the mayor and town clerk, of the result of such poll. The proposition to be submitted to the citizens at the poll is:—"That for the future there shall be aldermen in the council of the municipality as well as councillors, and no person shall be eligible for election as mayor unless he shall have previously served in a council for one year." The only advantage

attendant on the appointment of aldermen is an increase in the representation of the ratepayers in the town council. Mayors of corporate towns are *ex officio* justices of the peace for the province during their term of office only, but it has been customary for the Government to add their names to the commission of the peace after their term of office has expired. Persons who have been elected to offices under the Corporation Act can be compelled, under a penalty, to serve for the term for which they have been elected. Disputes as to the validity of elections are tried before two justices and decided in a summary way. The powers of corporations are extensive, but too numerous to be recited in detail. The most important of those powers in relation to the ratepayers is that of borrowing money for special objects. The consent of the ratepayers, however, is required before a loan can be contracted, and then it must not exceed ten times the amount which, at the time of borrowing, would result from a rate of 1s. in the pound on the assessed annual value of the ratable property in the municipality or the portion separately rated, as the case may be. All corporations form local boards of health within their limits. Their power to make by-laws is very far reaching, but all such by-laws are subject to revision by the Supreme Court, upon application by any citizen, who must, however, deposit the sum of £15 as security for costs. Before becoming valid all by-laws must be laid before the Parliament for a period of thirty days, confirmed by the Governor, and published in the *Government Gazette*.

In the year 1892 there were thirty-three corporate towns in the colony. The total amount of the assessments of property included in them was £1,018,717; the total revenue, including rates, Government subsidies in aid, grants for main roads and special purposes, licence fees, and miscellaneous receipts, was £135,254; the rating was slightly in excess of 1s. in the pound. The expenditure for the year was £135,234, distributed thus:—Public works, £51,403, or 38·01 per cent.; miscellaneous expenditure, £66,621, or 48·26 per cent.; and salaries and office expenses, £17,209, or 12·72 per cent. on the total outlay for the year. The principle of the assessment upon which rates are levied is according to the fair estimated annual rent, clear of all outgoings, at which the property could be let for a term of seven years, if the rent should be more than 5 per cent. of the value of the fee simple, and, if not, at 5 per cent. on such value. Blocks of not less than twenty acres, not divided by roads or unused, except for pastoral or agricultural purposes, are rated at 2½ per cent. An appeal against the assessment of any property can be made, in the first instance, to the council of the corporation, and from that to the nearest Local Court of Full Jurisdiction, whose decision is final. The council of any corporation may declare a rate of 1s. in the

pound for general purposes, a rate of 4d. in the pound for lighting the municipality, and a rate of 3d. in the pound for the improvement of the park lands, squares, or reserves of the municipality. The consent of the ratepayers is required before special rates can be declared by the council. A rate for street-watering at a particular rate may be declared, but only those persons whose properties have frontages to the places watered can be called upon to pay it. Special rates may be declared for special works on memorial signed by one-half of the ratepayers representing two-thirds of the ratable value of the property within the town affected. Such rates, however, are dealt with separately and are payable only by the persons concerned. Corporations may, without the consent of the ratepayers, borrow money upon the security of the general rates for the purpose of repaying loans contracted before the passing of the Corporation Act (1890), and may issue debentures. The interest on such debentures becomes a first charge upon the rates, and a proportionate amount must be set apart out of the rates for the payment of the debentures as they fall due. The money so set apart must be invested at interest in a manner to be approved of by the Minister of the Crown who is charged with the administration of the Act or any portion of it to which his function relates. In no case must the interest on corporation debentures exceed £6 per cent. per annum. In the event of any default in the payment of the interest or the principal sum borrowed the Supreme Court may appoint a receiver, who exercises the same powers of collecting and obtaining payment of the rates, on the security of which the money was borrowed, as the council of the corporation would have.

The above is a brief summary of the powers of municipal corporations. The first corporation established in Australia was that of the city of Adelaide, which was called into existence by an Ordinance passed by Governor Gawler and his Executive Council on August 19th, 1840, and the first elections under it were held on October 31st in the same year. After a short and unsatisfactory career the Act which constituted it was repealed. The repealing Act vested the whole of the property that had belonged to the corporation in the Crown, which, on the other hand, was empowered to pay the debts due by the corporation. It also authorised the Governor to levy rates upon all properties and houses within the limits of the police district, calculated upon the net annual value of the property assessed. In 1849 the powers exercised by the Governor over the affairs of the city of Adelaide were transferred to five city commissioners, who continued in office until the year 1852, when the Adelaide Corporation was revived. It consisted of a mayor, four aldermen, and twelve councillors. Since then the corporation has continued in active operation, and has carried out its functions with credit and success. The

assessed annual value of the property within the city of Adelaide is now £392,820, and the total revenue £53,420. The sum raised by the assessment in 1892 was £19,640 19s. 9d.

The district council system, under which the regulation of local affairs of the greater part of the colony is carried on, was introduced by Sir Henry Young in the year 1850. Previous to that time the outlay upon all local improvements fell upon the public revenues. Outside Adelaide there were no local governing bodies, and no machinery was in existence to enable settlers in country districts to combine for any purposes in which local interests or requirements were concerned. The District Councils Act, when it came into force, relieved the Government to a great extent from responsibility with regard to country affairs, and by calling into existence local representative bodies furnished with powers of taxation largely reduced the demands which were constantly pressed upon the State for assistance in carrying out objects of purely local interest or necessity. In order to encourage the establishment of district councils the Government began by supplementing the amount of the rates collected by an equal amount from the general revenue, and, in addition, a sum equivalent to any private subscriptions for public works which might be collected besides the ordinary rates. The liberality of the Government in the matter of private subscriptions was unfairly used in some cases, and was considerably curtailed. The grants which are now bestowed even in aid of the rates are very much reduced in amount. The district council system is firmly rooted in the colony, and its introduction has been followed by the best results. At present there are 135 district councils in the province, exercising jurisdiction over an area of about 42,500 square miles of country. One great advantage attached to the district council system is economy in working. The total outlay in salaries and office charges amounted in 1892 to 8·35 per cent upon the total expenditure, whilst that of corporations stood at 12·72 per cent. during the same year.

District councils are constituted by proclamation by the Governor in the *Government Gazette*, in which the councillors are appointed and the district divided into wards or left as one district, as may be required. The Governor has power to alter the boundaries of districts, to subdivide them or to unite them with other districts or municapalities, but in all cases he proceeds only on petition from the ratepayers concerned, which is acceded to or refused according to the merits of each case. All ratepayers (males) of districts of the full age of 21 years are eligible for the office of councillor, except ministers of religion, stipendiary magistrates, uncertificated insolvents, persons holding offices of profit under the council, or who are interested in any contract with the

council, except councillors acting as returning officers for council elections, for which they may be paid, or being members of public companies interested in any contracts or dealings with the council, and all such persons are compellable to serve when elected, except non-residents within the district who have not consented in writing to serve if elected, persons ceasing to reside within the district, persons who having served their full term as councillors or elected before the expiry of three years after their former service, persons who after being elected may become 60 years of age, persons receiving any salary from the Government, and members of Parliament. Ministers of religion, it will be noticed, are not disqualified from acting as members of corporations, nor are stipendiary magistrates. Vacancies in the office of councillor are created by death, lunacy, idiotcy, insolvency, assignment of estate for the benefit of creditors, or composition with creditors for less than 20s. in the pound. Non-attendance at council meetings, absence from the province, and other technical reasons also create vacancies. One half of the councillors retire every year, but are eligible for re-election. Chairmen of district councils are not *ex officio* justices of the peace and receive no payment for their services, but councillors in some cases may be paid their expenses. Councillors of corporations who act as returning officers cannot receive any remuneration without vacating their offices. Auditors are elected by the ratepayers, and one retires every year, but is eligible for re-election. All elections, whether for corporate towns or district councils, are by ballot, and are regulated by the Ballot Act of 1862. District councils have power to levy rates, and, with the consent of the ratepayers, to borrow money for undertakings of a public nature, and assign the rates as security for the loans. The councils form local boards of health and have power to make by-laws within certain limits, but they must be passed at a meeting at which at least two-thirds of the members are present, and such by-laws cannot come into force until signed by the chairman or clerk, confirmed by the Governor, and published in the *Government Gazette*, and until one week has elapsed since the date of such publication. The by-laws may be altered by subsequent by-laws, by regulations made by the Governor under any Acts which are inconsistent with such by-laws, and by a proclamation by the Governor published in the *Government Gazette* expressly altering or repealing such by-law.

Considering the immense area over which the jurisdiction of district councils extends, and the multifarious claims upon their resources, the funds at their disposal are but small. The amount of the assessments on the property liable to be rated by them was £1,596,377 in 1892, which produced the sum of £64,573 in rates, and the total receipts of all the

councils, including the Government subsidy, the grant for the maintenance of main roads, and miscellaneous receipts, were only £240,472. The extent of the work which has been performed in the country by the councils with their limited means is remarkable. Only the most pressing matters, it may be believed, can be attended to, but the roads are kept in good order, and the lines of internal communication through them are fairly passable in the worst seasons, as far as it depends upon them. The District Councils Acts can justly be regarded as amongst the most beneficial of the laws which have contributed to the development of South Australia, not alone on account of the valuable work which has been accomplished under them, but also on account of the feeling of self-reliance that has been established in small communities, which otherwise would have been a continual burthen upon the Government of the colony.

The city of Adelaide, the capital of South Australia, is situated on an extensive plain, on the banks of the River Torrens, in lat. 34° 57′ S., and long. 138° 38″ E. Its western boundary is about five and a half miles distant from the shore of St. Vincent's Gulf, and its eastern boundary about four and a half miles distant from a range of hills known as the Mount Lofty Range, which almost touches the sea at Cape Jervis, fifty miles south of Adelaide, and stretches in a north-west direction beyond Port Augusta, 180 miles almost due north from Adelaide. The city contains 1,042 acres, and is surrounded on all sides by park lands, about 2,300 acres in extent. A portion of these lands, nearly a mile wide, divides South from North Adelaide, and is intersected by the waters of the Torrens Lake, a sheet of water formed by damming up the river at a point adjacent to its western limit. The area of Adelaide, including the park lands, is somewhat above five and a half miles. The park lands are dedicated in perpetuity to the use and recreation of the citizens, and cannot be alienated unless by authority of a distinct Act of the Legislature. The affairs of the city are managed by a corporation, consisting of a mayor, six aldermen, and twelve councillors. The powers of the corporation have already been noticed. The streets under the control of the city council are over eighty miles in length and vary in width from 132ft. down to 20ft.; none of the principal streets, however, are less than 66ft. wide. The city is bounded by terraces on its north, west, south, and east sides in South Adelaide, all of which front the park lands, and similar boundaries enclose the North Adelaide section of the municipality. The roadways in all the streets are admirably macadamised, and in the principal thoroughfares the footpaths are either flagged or asphalted. The footways so made extend for over fifty miles in length. The northern and southern parts of the city are connected by five

substantial bridges with excellent approaches. Adelaide is well supplied with water, the delivery being constant and the service at high pressure. The sewerage of the city is carried away by means of an extensive system of sewers, which discharge their contents at the sewage farm, four miles north of Adelaide, where the water is filtered and used for irrigating the land under cultivation, whilst the solid parts serve as manure. The streets are well lighted with gas; and besides the cabs and omnibuses which ply for hire, are otherwise served with excellent tram lines which carry passengers to all the suburbs at very moderate rates. There are five squares in South Adelaide and one in North Adelaide; all of these are enclosed with iron railings, planted with trees, and laid out with grass. The borders of the terraces which surround the city, and those of many of the footways of the wide streets, are also lined with trees, which relieve the monotony of the long straight thoroughfares which run at right angles from each other from north to south and east to west, and give them a fresh and lively appearance. The widest street in Adelaide is King William-street, which is 132ft. in breadth and a mile in length from South-terrace to North-terrace, and, with Rundle and Hindley streets and Grenfell and Currie streets, forms the principal business centre in the city. The Law Courts are situated at the corners of King William-street on the south side of Victoria-square, and one branch of the Government offices is on the east side of the square. The principal Government offices and the General Post Office are built in King William-street at the north end of Victoria-square, and the Town Hall and several of the banks and other public buildings follow on to North-terrace on either side of the road. The north side of North-terrace is occupied entirely by public buildings. The central railway station lies to the west of King William-road, which leads from King William-street to North Adelaide. This is the main terminus of all the railway lines in the colony. Passengers may be booked there for all the other colonies and for all parts of South Australia to which the lines extend. Trains start twice a day from this point for Victoria, New South Wales, and Queensland, and twice daily for the silver mining districts which centre at Broken Hill. Trains runs hourly, and in the middle of the day more frequently, to Port Adelaide, the Semaphore, and Largs Bay (where the mail steamers anchor), and at intervals to the Grange, Henley Beach, and Glenelg. Trains also depart from Victoria-square for the latter watering-place, alternating in point of time with those which leave North-terrace. Next to the railway station the Parliament Houses are built; these are contained in a magnificent edifice constructed of marble from Kapunda. The structure is only partly completed. Attached to the Legislative Chambers is the Parliamentary library, containing upwards of 20,000

volumes. In the rear is the Government Printing Office. On the eastern side of King William-road Government House, the town residence of the Governor, is situated in large and well laid out grounds. In the rear of the domain the parade ground for the local military forces is located. Next to the Government House and grounds a little eastward stands the Circulating Library, containing about 18,000 volumes, founded by the State, but now supported principally by annual subscriptions. The books and buildings are the property of the Government. It is connected with the Public Library and Museum, which are immediately adjacent to it. At one time these constituted the South Australian Institute, which has now given place to the Public Library, Museum, and Art Gallery of South Australia, established by Act of Parliament (296 of 1883-4), and is managed by a Board of Governors elected by various bodies connected with educational objects. It has a School of Design and Painting in connection with the general establishment. The reading-room is free. and open from 9·30 a.m. till 9·30 p.m., and on Sundays from 2 till 6 p.m. The Public Library contains about 35,000 volumes, and is also free. It is open to the public for the purpose of reading in the library from 10 a.m. till 6 p.m., and on Sundays from 2 p.m. till dusk. The Museum is open (free) from 10 a.m. till dusk, and on Sundays from 2 p.m. till dusk. The Art Gallery, which is in the Exhibition Building on North-terrace towards its eastern limit, is open free on week days, in the spring and summer months from 10 a m. till 5 p.m., and on Sundays from 2 till 5 p.m. In the autumn and winter months it is open from 10 a.m. till 4 p.m., and on Sundays from 2 till 4 p.m. The School of Painting and School of Design are open on various mornings and afternoons during the week. The Museum and Public Library when complete will form an immense and imposing structure; at present only one wing has been erected. The University Buildings are immediately contiguous to the Public Library. The Exhibition Building was erected on a block of land extending east and north of the University, containing about 18½ acres, and now affords accommodation for a Technological Museum, the Art Gallery, the Chamber of Manufactures, and the School of Mines and Industries. It is also used by the Agricultural and Horticultural Society for its periodic shows, for which, in the principal hall and the extensive grounds connected with it, there is abundant space. The Hospital and the Lunatic Asylum, the only other public buildings on the eastern end of North-terrace, have already been noticed.

The Botanic Gardens, which intervene between these last-mentioned establishments, occupy an area of forty acres, which extend from North-terrace to the River Torrens. They are most tastefully laid out and

form one of the principal sights of Adelaide. They contain over 13,000 different species of plants. The gardens are well supplied with water, which enables the director to maintain them in good order during the most trying season of the year. Within the gardens there is a museum of economic botany, a museum of specimens of Australian woods, a beautiful palm house, orchid houses, a *Victoria Regia* house, where this magnificent South American water lily comes to perfection in its season, and an experimental garden, besides numerous fountains, ornamental statues, and other appropriate decorations. These gardens were brought to their present state of perfection by the late Dr. Schomburgk, whose exertions in promoting botanic science had obtained for him decorations from most of the reigning sovereigns of Europe. These gardens are open free on every day in the year. To the north of the gardens a space of over eighty acres has been laid out as a Botanic Park, which is intersected by an elegant carriage drive, and sub-divided by broad shaded paths and walks. The park and the gardens are most favorite places of resort in Adelaide.

A small section of the reserve which has been converted into the park is used by the Zoological (formerly the Acclimatisation) Society as the site of the Zoological Gardens. These are of comparatively small extent as far as acreage is concerned, but they are admirably planned and most complete in arrangement. The collection of animals is the largest in Australia, comprising about 1,200 different zoological specimens. Want of space is gradually pressing upon the committee of management and it has been proposed that the grounds should be extended to a portion of the park lands on the north bank of the Torrens, with which it would be connected by a light ornamental bridge. The proposal, however, is not yet sufficiently matured to be put into execution. The garden is supported by annual subscriptions and the entrance fees payable at the gate, aided by a grant from the Government. The charge for admission is 6d. The grounds are open to the public daily from morning till evening. On Saturdays admission is free. The gardens were laid out and arranged by Mr. R. E. Minchin (lately deceased).

The Torrens Lake is a fine sheet of water, which stretches from the dam, near the gaol, eastward for nearly two miles. Before the weir was constructed the appearance of the River Torrens was most unsightly. In the winter months it was a dangerous torrent, and in summer a narrow shallow streak of water, running slowly and scantily, with sand and mud flats on either side, hemmed in by perpendicular high banks, which were continually falling into the bed of the watercourse, and loading it with *debris*. Rough stones, patches of reeds, and here and there snags of partially buried drift timber sticking out from the banks, in the water,

and in the mud and sand patches, gave the whole channel a broken and dilapidated appearance, which harmonised badly with the cheerful look of the park lands, which come down to the extreme edge of the river banks. A wooden dam was constructed near the site of the present one, and it answered its purpose for a time; but it was swept away in a heavy flood which came down in October, 1867. A stone weir was subsequently erected, and is apparently a permanent structure. By means of this weir a stretch of water about two miles long, of considerable depth and great though varying width, runs through the city from east to west, and gives ample scope for the amusement of those who are fond of aquatic sports. Boat races are held on the lake at certain seasons of the year, and the lake is well supplied with boathouses and other conveniences necessary for rowing. The forming of the lake has added greatly to the beauty of the city. The waters are under the control of the corporation, and both the fish in them and the wild birds which flock to them at various periods of the year are strictly preserved from molestation or capture.

The Town Hall, on the east side of King William-street north, is a handsome though somewhat massive structure, built of freestone. The portico, which extends to the edge of the footpath, is surmounted by a tower 138ft. high. The building contains an elegant council chamber, reception and banqueting rooms, extensive offices, and a great hall 108ft. long, 67ft. broad, and 44ft. high. A magnificent organ fills the eastern end of the hall, which is capable of seating 1,500 persons. On the opposite side of the street, but a little further south, stands the General Post Office. This is a splendid edifice, in the Italian style. From the centre of the building, at the junction of King William-street and Victoria-square, two wings branch off north and west containing the public and private offices required for the postal and telegraphic services. The centre forms the foundation of the clock tower. The tower itself is 154ft. high, and is furnished with a clock with four dials facing the cardinal points. These dials are illuminated at night. The incoming and outgoing mails are signalled from a flagstaff, springing from a lookout or cage at the summit of the tower. The clock chimes the hours and quarters. The hours are struck on a deep toned bell, which weighs upwards of 2 tons; the quarters are rung upon four smaller bells, weighing about 7cwts. each. A commodious and tastefully decorated vestibule runs east and west of the building from the clock tower, provided with entrances from Victoria-square and King William-street. It is 91ft. long, 38ft. wide, and 40ft. high, and around it are arranged the letter receivers, the inquiry office, the stamp department, the money order office, the private letter boxes, and other offices for public business. The telegraph branch of the department is at the

northern end of the building, and is the central terminus of the Eastern Intercolonial, the West Australian, the Transcontinental, and the Indian and European telegraph lines. The foundation stone of the tower was laid by H.R.H. the Duke of Edinburgh on November 5th, 1867. Since that time the Post Office buildings have been considerably enlarged owing to the large increase in the general business, the extension of telegraphic communication, and the adoption of the telephone system, which is extensively used in the city and suburbs. About a quarter of a mile from the Post Office, to the west of Victoria-square, the Central Market, for fish, meat, fruit, and vegetables, is situated. This is the property of the corporation, and is under its control. The chief market for fruits and garden produce is at the north-eastern corner of South Adelaide, near the junction of North and East terraces. It was established by a private company, and its business is regulated by a special Act of Parliament. The cattle, sheep, and pig market is located at the western end of North-terrace, beyond the railway station and goods sheds. The market is open on Wednesdays. Beyond the market, but separated from it by an extensive olive plantation, lies the Adelaide Gaol. The plantation is cultivated by prison labor. Further to the west and close to the city boundary the public abattoirs are established; they belong to the corporation and are managed under its supervision. The cemetery is situated at the south end of West-terrace outside the city, and is under the charge of a curator responsible to the Government. A new site for a cemetery has been purchased about seven miles north of Adelaide beyond the Dry Creek, which has been partially laid out, and will probably before long be brought into use and the present one closed. It has been in use for over fifty years, and most of the available ground has been occupied. Moreover, it is considered undesirable to have the cemetery in such close proximity to the city.

The city of Adelaide is well supplied with places for religious services. The Church of England has one cathedral and five other churches; the Roman Catholic Church has a cathedral, two churches, and two mission stations. Five places are conducted by Wesleyan ministers, and three by Congregational ministers. There are also three Presbyterian churches and four Baptist churches. The Hebrews have a neatly built synagogue, the Society of Friends a meeting house, the Unitarians one church and other places are also devoted to the observances of the various sects which are represented in Adelaide. The "City of Chapels," as Adelaide has been called by facetious writers in the eastern colonies, is also liberally provided with places of amusement. An excellent racecourse, with a handsome grand stand and the various conveniences for racing meetings, is laid out on the East Park Lands. Football grounds are marked out in

many places for the different clubs. The cricketing oval, the best in Australia, is on the North Park Lands. There is another racecourse at Glenelg, near the seacoast, where some of the principal races take place. There are two theatres, a cyclorama, three clubs, and a philharmonic society, which gives its concerts in the Town Hall. There are also many other places where balls and other social gatherings take place from time to time. The mercantile interest has its Royal Exchange, Chamber of Commerce, Stock Exchange, nine banks, besides the Savings Bank—the Union Bank of Australia, the Adelaide Bank, the Bank of New South Wales, the Bank of Australasia, the Bank of New Zealand, the Commercial Bank of Australia, the National Bank, and the English, Scottish, and Australian Chartered Bank. Learned and scientific societies have their places in the social arrangements of the capital. The Royal Society is the leading scientific organisation in the colony. It holds its meetings in the Public Library buildings, and is under the patronage of Her Majesty the Queen. Its transactions are published annually, and they embrace papers on all branches of natural science. The naturalists' section of the Royal Society of South Australia devotes its energies chiefly to botany, geology, and natural history. The Geographical Society does excellent work in encouraging all researches into matters connected with the exploration and internal geography of the continent as well as the history of its aboriginal inhabitants. There is an institute of engineers and surveyors which deals with all subjects connected with mechanics and architecture. A medical society concerns itself with affairs which concern the medical profession, and there is a medical board, presided over by the Colonial Surgeon, where duly qualified medical practitioners register their diplomas. This last is a Government establishment.

The Fourth Estate occupies a strong position in Adelaide, and in all the country towns in the colony. Two daily morning papers are published in the city. The *Register*, the first one established in South Australia, dates its existence from the foundation of the colony, the first number being printed in England just previous to the departure of the first batch of colonists, and with a change of name the paper has been continued uninterruptedly ever since. The *Evening Journal*, which is issued by the proprietors of the *South Australian Register*, appears every evening. The *Advertiser* was founded about thirty years ago by the late Hon. John Barrow, M.L.C. This paper has also its evening edition, which appears under the name of the *Express and Telegraph*. The dailies are first-class newspapers of large size, and are quite equal in ability and usefulness to any that are produced in Australia. A weekly paper is issued from each of the above offices, called respectively the

Observer and the *Chronicle*. Besides these there is the German paper (*Die Süd Australishe Zeitung*), *Quiz* (a comic paper), and three religious and four other newspapers which appear weekly. All of the large country towns have their local newspapers, some of which are published twice a week and the others once only. There are twenty-three country papers. A German religious paper is brought out fortnightly, and there are half a dozen magazines and papers devoted to special subjects which are published monthly. General literature has not been neglected in the colony. A small book was published by Mr. T. Gill, of the Treasury Department*, giving a catalogue of all the known works published in South Australia, or on subjects connected with it. There were then about 150 persons who are named as authors, most of them South Australians, many of whose works are well known in England. History (of the colony), fiction, poetry, science, political history, &c., have had their representatives, and their works for the most part display ability of a high order. Since 1885 many additions have been made to the list of South Australian books, which have not been inferior in merit or in usefulness to those which have preceded them.

The British and many foreign insurance companies are strongly represented in Adelaide. A well-organised fire brigade looks after the safety of the city from conflagration, and is controlled by a board established by Act of Parliament. The brigade has two stations in Adelaide and some in the suburbs, as well as other stations in country towns which are connected with and controlled by the Board. Others of the suburbs, such as the towns of Norwood and Kensington, St. Peters, and Hindmarsh, have their own fire brigades, managed by committees appointed by the several corporations.

At the census of 1891 the population of Adelaide numbered 37,837, and the city contained 7,474 houses. The inhabitants are considerably over 40,000 now, and the houses number between 8,000 and 9,000. Being well supplied with water and admirably drained, Adelaide is one of the healthiest cities in Australia. It is certainly the cleanest, and is said to possess the best situation and to be the most beautiful. A writer in the *Saturday Review* describes it as a "model city," and he says there is in it "something wholly impossible to define—a combination it may be of the sunshine, the dark trees, the low houses, and an all-pervading look of cleanliness and freshness in which Adelaide stands alone†."

Several watering places are established on the coast, namely, Glenelg, Henley Beach, the Grange, the Semaphore, and Largs Bay, which are much resorted to during the hot season, and may all be reached within

*Bibliography of South Australia: T. Gill, Glen Osmond. 1885.
†Jubilee of Municipal Institutions in Australia: T. Worsnop, Town Clerk, Ad. 1890.

half an hour by rail. The favorite seaside resorts, however, for those who wish for a more complete change than can be obtained at those which lie in Holdfast Bay, near the city, are at Port Elliot and Victor Harbor, which are situated on the east end of Encounter Bay, sixty-seven miles from Adelaide. The delicious climate of these places is almost unsurpassed in the colony. They are reached by railway trains, two of which leave Adelaide daily. On the east side of Yorke Peninsula, in Spencer's Gulf, other pleasant watering-places are established, as at Edithburg or Ardrossan, within five hours, steaming from Port Adelaide. One of the most delightful spots for a seaside residence is at Port Lincoln, on the east side of Banks' Peninsula, but this can be reached only by steamer once a week; it is 210 miles west of Adelaide. By far the most enjoyable climate in South Australia is found on Kangaroo Island, ninety miles south of Port Adelaide. This can scarcely be regarded as an established summer resort, because there is no regular steamboat communication and the accommodation for visitors is very limited. For those who do not care for the seaside, most agreeable summer quarters can be found in the Mount Lofty Ranges. Their great elevation above the sea level (1,500ft. to 2,000ft.) renders them most refreshing retreats from the great heats that at times prevail on the plains. They display very grand scenery and abound in beautiful gardens, which produce almost all kinds of European fruits, as well as others which are peculiar to many sub-tropical regions.

A beautiful place of recreation has been set apart for public use at what was known as the Government Farm, about ten miles south of the city. It contains 4,000 acres. It is managed by a board, and is supported by means of a Government grant. It is a delightful spot, and is much frequented by pleasure seekers in holiday times.

A country residence has been built for the use of the Governor of the colony. It is situated at Marble Hill, about twelve miles east of the city. Situated as it is on one of the highest of the hills in the Mount Lofty ranges, it commands a magnificent view of the city and the plains. The house stands in grounds 400 acres in extent. It is a magnificent stone building, and it has a tower 75ft. high. The cost of the structure was nearly £22,000.

The defence of South Australia, as indeed that of the whole of the Australian colonies, must depend mainly upon the naval forces of Great Britain. For many years Australia has constituted a naval station, but the squadron until lately was limited to a very few ships of small size, and decidedly inferior in armament and in speed to the requirements of the colonies. They were under the command of a commodore. The force has latterly been increased, and the squadron is now commanded by a rear-admiral. In addition to the vessels required for services exclusively Imperial, a number of cruisers, gunboats, and torpedo boats have been

added to the squadron, under an agreement between the Home Government and the different colonial Governments, for which the latter pay a yearly sum of £90,000, contributed by each separate colony on the basis of its population. Besides, South Australia has its own small naval defence force, which consists of a gunboat, the *Protector*, of 1,000 tons, carrying an armament of one 10in. 11½-ton B.L.R. gun, seven 6in. 4-ton guns, four 3in. Hotchkiss quick-firing guns, five Gatling machine guns, and ten 14in. Whitehead torpedoes. The ship draws 14ft. of water, and is manned by a crew of six officers and sixty men. There is also a naval reserve of four officers, two warrant officers, five petty officers, and seventy A.B.'s. The force includes two torpedo boats and a torpedo station. The land forces consist of a commandant and staff (ten), the Permanent Military Force of fifty-nine officers and men, who are employed in manning the two forts erected at Glanville and Largs Bay for the defence of Port Adelaide. The Active Militia Force includes one corps of lancers, three batteries of artillery, and three regiments of militia infantry, a reserve of cavalry, artillery, and infantry, which, with the officers on the effective retired list, give a total strength of 1,650 officers and men. In addition to these there is a reserve force of 416 mounted infantry and 400 infantry, making a total available force, including the naval branch, of 2,609. Most of the reserves are in the country districts some distance away from Adelaide, but all are within reach of the city by railway. In the event of threatened invasion or rebellion the Militia Force and the Militia Reserve (Volunteer) Force are liable to be called out for permanent service. If called out by proclamation for actual service the Militia may be ordered to serve in the other colonies in case of danger, for "the defence of a neighboring colony might in some cases be the most rational means of defending South Australia."

The irrigation colony of Renmark, on the north bank of the Murray, 140 miles N.E. of Adelaide, was established in 1887 by Messrs. G. and W. B. Chaffey under a special Act of Parliament, founded on an agreement with the Government of that day. The Messrs. Chaffey had had a long experience in irrigation works in California, and in visiting Australia in 1881 were struck with the adaptability of certain tracts of country bordering on the River Murray to irrigation purposes In a dry climate like that of South Australia, where the prosperity of the country from year to year is almost entirely dependent on the rainfall, the value and importance of a constant and abundant supply of water as an aid to cultivation cannot be over-estimated. Irrigation (except in a very few places, and in them only upon the smallest scale) had not been undertaken in the colony. The feasibility of constructing irrigation works of large extent had been discussed occasionally by persons interested in agriculture; but no tangible schemes were projected and the subject did

not engage the attention of the Legislature. Having examined the country and satisfied themselves as to the nature of the soil and climate, and on other matters, the Messrs. Chaffey entered into negotiations with the Government for the purpose of acquiring a tract of land upon the Murray for the purpose of founding an irrigation colony there, similar to one which they had successfully established in California. The negotiations ended in an agreement with the Commissioner of Crown Lands, subsequently ratified by Act of Parliament, by which it was provided that the Messrs. Chaffey were to receive a grant of 250,000 acres of land on a site agreed on, upon condition that they expended within twenty years the sum of £300,000 on the construction of irrigation works and other substantial and permanent improvements on the lands, to be expended in the following way:—During the first five years £35,000 were to be spent; during the second five years, £140,000; during the third, £75,000; and £50,000 during the last term. The agreement further provided "that in every sale, disposition, or transfer of the land by Messrs. Chaffey, or anyone claiming through them, a sufficient water right shall be secured to the purchase to be held with and run with the land as a perpetual easement," and that "they will use all reasonable exertions to establish on the land to be granted under the agreement, within the period of five years, the business or industries of fruit drying, preserving, and canning, and that during the remainder of the term carry on such businesses or industries." There is a further condition that the Messrs. Chaffey will set apart one-twentieth part of all the irrigated land which shall be granted to them by the Crown, with a sufficient water right attached thereto for the purpose of endowing an agricultural school or college. The land so set apart shall consist of either 80 acres or 160 acres, or less out of every twenty parcels of 80 acres or 160 acres, or less as the case may be, the Messrs. Chaffey to convey such land free from incumbrances to the Commissioner of Crown Lands, or to such person or corporation as the Government may direct. The clause concludes by enacting that the Messrs. Chaffey are to establish the college in a suitable building to be erected by them for instructing persons as to the best modes of constructing irrigation works, cultivating fruit trees, preserving and drying fruits, and also for instruction in agriculture. As each successive instalment of land is handed over by the Government to Messrs. Chaffey and a complete system of irrigation established thereon the irrigation works are in turn transferred to the Renmark Irrigation Company, who hold the property in trust for settlers, each of whom receives paid-up shares in the company proportioned to the acreage of his holding, and this constitutes his water right. The price at which the land is sold, including this right, is £20 per acre.

Five or ten years respectively are allowed for payment if the purchaser wishes, 5 per cent. being added in such cases, on the building society principle. By this arrangement the settlers themselves become owners of the pumps and channels, and the Irrigation Company levies a rate on all the land, amounting to about 6s. per acre per annum, whether cultivated or not, to defray the expenses of working the plant. On the interpretation and application of this part of the agreement differences have arisen between the Messrs. Chaffey, or the company which they represent, and land buyers; these, however, are in progress of settlement by legislation. The horticultural land is divided into ten-acre blocks; eighty acres is the maximum allowed under the Act to be conveyed to any one purchaser, except by the permission of the Government.

The following extract from the report of the Commissioner of Public Works (1891) will give some idea of the progress of the settlement:—"This colony is making steady progress. The area of land sold this year was 2,200 acres, and the company had an additional area of 6,200 acres surveyed and partially pegged out. This has been divided by Messrs. Chaffey into township, villa, and horticultural blocks, the whole being bounded by a continuous vermin-proof fence thirty miles in length. The greater part of this has been sold, and the work of clearing and general development carried on with vigor. The district comprehended within the township boundaries has been divided into forty sections, comprising a total area of about 200 acres, averaging about thirty-two lots to each section; the general measurement of these lots is 33ft. frontage by 155ft. depth, and already more than half has been sold. The town is intersected by three main arteries—magnificent thoroughfares three chains wide—the sub-dividing streets being one and a half chains. With the exception of a valuable site abutting on the river and reserved for Government offices, the entire township is being dealt with, and is being rapidly built upon at the present time. The following buildings have been constructed:—Three places of public worship, seventeen stores and offices, post office, bank, &c." "The estimated population of the settlement as a whole is approximately 600." The surveyed land is also divided into villa areas and a horticultural area. These are being dealt with under the terms of the Act. "The irrigation channels have already been constructed to a length of seventeen and a half miles, nearly four miles of which are concreted. Of this distance nine and a half miles consist of main and the remainder of subsidiary channels, and several additional miles are in course of construction or laid out. The pumping stations for irrigation purposes are three in number—one at the west end of the township, on the bank of the river, and the other two upon different points of the Renmark reservoir. The combined capacity of the various

pumps at present employed is 22,000galls. per minute. For the purpose of supplying the township with water a station upon the wharf is fitted with power to raise 85,000galls. per hour. The nearest point of contact with the railway system is at Morgan, seventy-five miles away, which can be reached either by steamer or mail coach once or twice a week respectively. There are two mails in and out weekly, and the local post office is in direct communication with Adelaide." The report further says that "the conditions of the agreement have been satisfactorily carried out by the Messrs. Chaffey, and the colony appears to be in a satisfactory condition."

In the Report on Public Works (1892) it is stated that—"The area of land granted to the Messrs. Chaffey now amounts to 10,819 acres, of which on June 30th 2,000 acres had been sold and 1,305 acres were under cultivation, as follows:—770 acres cereals and lucerne, 327 acres vines, and 208 acres fruit and olives. Very little has been done yet in the way of sales of produce, and we must wait further results before pronouncing whether the colony is going to prove a success financially. The orchards and vineyards first planted are just coming into bearing, and a year or two will probably give some definite results. The settlement has every appearance of permanence, and comfortable buildings are being erected, so that it is evident that the settlers themselves have faith in the future. In accordance with the provisions of the Act a site has been selected for an Agricultural College, the erection of which will no doubt be commenced at an early date."

Messrs. Chaffey state that they have spent over £100,000 in Renmark. The area at present handed over to them is 15,000 acres. They have now five pumping stations for irrigation purposes in the settlement. All kinds of temperate and sub-tropical fruits and vegetables can be successfully grown in the settlement. Apricots, raisins, and currants of the finest quality have been raised and exported, while peaches, apples, pears, figs, oranges and lemons, nectarines, plums, strawberries, and many other fruits have been grown in great perfection, but as yet only in small quantities. About 20 tons of dried fruits were exported in the season of 1892-3. From the daily journals it appears that some of the preserved fruits have fetched larger prices in London than those realised by the best Californian brands. The further progress of this settlement is regarded with the greatest interest. Young enterprises do not develop rapidly in thinly-populated countries, but the lesson that can be learned from the results of irrigation at Renmark, whilst certain to advance the progress of that undertaking, cannot fail largely to influence agriculture in places where water can be made available for its processes.

CHAPTER XXIV.

THE ABORIGINES OF SOUTH AUSTRALIA—SUPPOSED ORIGIN—SIMILARITY OF SKULL TO THAT OF PRE-HISTORIC MAN—STONE WEAPONS—NUMBERS OF THE ABORIGINES—PREPONDERANCE OF MALES OVER FEMALES—PROPORTION OF ADULTS TO CHILDREN—POLYGAMY—IMMORALITY—INFANTICIDE—CONDITION OF THE WOMEN A CAUSE—FONDNESS FOR CHILDREN—CANNIBALISM—MUTILATIONS—MORTALITY AMONGST THE NATIVES—DECAY OF THE ABORIGINES—CAUSES WHICH LEAD TO THEIR DYING OUT—HOSTILITY OF THE NATIVES—ATTACKS UPON WHITE TRAVELLERS—RETALIATORY MEASURES—CHARACTER OF THE WILD BLACKS—TRIBES EXISTING AT THE FOUNDATION OF THE COLONY—THEIR DISAPPEARANCE—THEIR DIALECTS—ORIGIN OF THE LANGUAGES—PHYSICAL CHARACTERISTICS OF THE ABORIGINES—THEIR INTELLIGENCE—DEPENDENCE ON THE WHITE MEN—MARRIAGE CUSTOMS—MAKING MEN—FUNERAL RITES—NATIVE DWELLINGS—MAKING FIRE—NATIVE WEAPONS—FOOD OF THE ABORIGINES—THEIR COOKERY—RELIGION OF THE NATIVES—AMUSEMENTS—MUSIC—SORCERY—RAINMAKERS—DOCTORS—ARTS OF THE NATIVES—SMOKE SIGNALS—TRAINING INSTITUTIONS—CONCLUSION.

THE region from which the Australian aborigines originally came is not known. It is supposed that they are of Malaysian origin, and that they found their way to the continent of Australia from some of the islands which are not far distant from its northern shores. It is known that a long time ago at certain times craft of some kind visited North Australian waters from those islands for the purpose of obtaining trepang or bêche de mer *(Holothurium)*, and that their crews have continually landed at different spots, but when these visits began, or what part, if any, they have played in peopling Australia, can only be matter of conjecture. It is believed by a few, whose intimate acquaintance with particular tribes is entitled to some weight, that they consist of two distinct races, but of this there is no substantial proof. The habits and customs of the native people all over the continent exhibit a great uniformity. Such divergences as have been noticed amongst them are not so distinctive as to establish the fact that there were originally more races than one. Science, however, throws a little light on one part of the question. At a meeting of the congress for the advancement of social science, held not long since in Adelaide, in a paper upon "Pre-historic Man" by Dr. E. C. Stirling, lecturer on physiology in the University of Adelaide, it was stated that "the prevailing type of Australian skull has a remarkable resemblance to the Neanderthal skull. Professor MacAlister, of Cambridge, one of the leading anatomists and anthropologists of the day, to whom a cast of King Billy Rufus' skull was presented, said it was the most Neanderthaloid skull he had seen. We have others in the Museum

very similar to it, and it may be taken as typically Australian. . . . . Another curious point of resemblance between paleolithic man and the modern Australian aboriginal is the fibula or outer bone of the leg below the knee. In each case it was remarkably flattened or fluted."

There is another point of resemblance in the weapons used by the aborigines. They are of wood and stone. None of the tribes have shown any knowledge of iron or other metals, or of their uses, and whatever they may have learned respecting them has been gained from their intercourse with white men. In time to come more evidence may be brought to light which may tend to connect the Australian savage with the paleolithic stage of human progress. Caves are abundant in various parts of the continent, where large accumulations of the bones of animals (some of them extinct) have been discovered. It is not recorded that any special search has been made for flint or stone weapons in such places. If they can be found anywhere in Australia they are likely to be discovered in caves and in other spots where there are large osseous deposits. Hatchets or stone-cutting implements used by paleolithic man have a distinctive character, and are not difficult to identify by persons who may have seen specimens of such articles, or have attentively studied the numerous drawings of them which are published in most of the recent geological books. Amongst the refuse heaps (kitchen middens) in Denmark which have been studied by antiquaries and naturalists no implements of metal have been detected. All the knives hatchets, and other tools are of stone, horn, bone, or wood. With them were often intermixed fragments of rude pottery, charcoal, and cinders, and the bones of the quadrupeds on which the rude people fed. . . . As there is an entire absence of metallic tools, these refuse heaps are referred to what is called the age of stone, which immediately preceded (in Denmark) the age of bronze. . . . . As the ages of stone, bronze, and iron merely indicate successive stages of civilisation, they may all have co-existed at once in different parts of the globe, and even in contiguous regions amongst nations having little intercourse with each other. In Australia no buried weapons have as yet been brought to light. Those which are known are confined to the few which were in use amongst the natives when the Europeans first came to Australia. No metallic implements of their own contrivance have ever been seen amongst them, so that to all appearances, and so far as present knowledge respecting the aborigines extends, it would seem that they have not advanced beyond the condition of the savages of the stone age who existed in other parts of the world.

The aborigines of South Australia, to whom the following observations generally refer, are composed of numerous tribes, the number of which is

not ascertained, and are scattered over a territory which covers an area of 900,000 square miles. How many there were when the white race established themselves upon it is not even a matter of speculation. It is only within comparatively recent years that efforts have been made to ascertain their numbers. In 1842 Dr. Moorhouse, Protector of Aborigines, estimated them at about 3,000, but this was merely a general estimate, and referred only to a tract of country not more than 80,000 square miles in area. Probably the total was over-stated, because in 1876, when the census was taken, the number of the natives in South Australia, exclusive of the Northern Territory, was ascertained to be only 3,953. The area of this part of the colony was 300,000 square miles. When the census of 1891 was taken it was ascertained that there were 23,789 aboriginal natives in the whole province. The males were 14,510, and the females 9,279. Those who inhabited the Northern Territory, *i.e.*, from the 26th degree of S. lat. to the Indian Ocean, formed the larger part of the native population. They amounted to 20,655, of whom 12,849 were males and 7,806 females. The natives of South Australia proper, that is, within the territory which extends from the 26th parallel of S. lat. to the Southern Ocean, numbered only 3,134, comprising 1,661 males and 1,473 females. There is nothing to enable it to be determined whether the aborigines in the Northern Territory have increased or decreased since that part of the country was taken up by the whites. In all probability they have greatly diminished in numbers, because the excess of males over females is so great as to render an increase scarcely possible. The proportion between the sexes in the whole province stands thus:—Males, 61 per cent.; females, 39 per cent. In the Northern Territory, taken alone, there are 62·21 per cent of males to 37·79 per cent. of females; and in South Australia proper the relative proportions are—males, 53 per cent.; and females, 47 per cent. The number of the children belonging to the tribes of the Northern Territory could not be ascertained with sufficient exactness to be of much use, so that the reserve strength of these people—if it may be so termed—is not a measurable quantity. In the southern portion of the colony there has been no difficulty, and it is recorded that there are no more than 506 children. The number of adults of both sexes is given as 2,628, so that the fact is established that they outnumber the children in the proportion of five to one. Since the males in the Northern Territory preponderate over the females in a much greater ratio than they do in the southern part of the province, it is highly probable that the disproportion between the adults and the children in the north is even more marked than it is in the south.

Whatever effect the disproportion between the sexes may have in checking increase amongst the natives, the arbitrary and unequal distribution of the marriageable women emphasises it more strongly. Polygamy is a custom common to all of the tribes, and whilst the old men may possess two, three, or more wives, most of the other men, but especially the young ones, have none at all. Under such circumstances it cannot be surprising that immorality and licentiousness are everywhere prevalent, and are not regarded as circumstances of any great moment. Such conditions of life cannot fail to operate adversely against the multiplication of the progeny of the blacks. The practice of infanticide—especially the destruction of female infants—is universal throughout Australia. None of the tribes which have been met with in any portion of the continent are untainted with it. Mr. Eyre, who was Protector of Aborigines at Moorundi (whose account of the tribes amongst whom he was stationed is the most complete that has been written about them), states that each of the aboriginal women has on the average five children, nine being the greatest number known, but that each mother rears on the average not more than two of her offspring. Some of them, it is clear, must occasionally be taken off by natural causes, and the remainder that are not put out of the way is all that can be depended on for the continuance of the race. One reason why infanticide is so prevalent is that the women are the absolute slaves of their husbands. They are literally beasts of burthen, and have to do all the hard work that can be imposed upon them. Dereliction of duty or disobedience is visited by the most brutal personal chastisement inflicted with heavy sticks. Sometimes the wives are speared by their owners or husbands, and at times fatally. Children, especially the females, are intolerable burthens to the women, and to some extent drags upon their fathers. The fewer of them therefore the better. There is less toil and drudgery for the women and less trouble for the men as fathers of families; thus the smallest number of unprofitable mouths to tax the resources of the tribes is secured. It must not be concluded from this that the natives are devoid of affection for their children. Dr. Moorhouse, Protector of Aborigines in Adelaide, remarks on this subject* as follows:—"*In their dispositions they display strong affection for each other, great fondness for children, and attachment to persons who are kind to them.* On the other hand, they indulge in every evil passion to excess, and, estimating human life as of low value, do not hesitate to sacrifice it for a trivial insult. As their women are obtained from other tribes, by theft or otherwise, female infants at birth are not infrequently put to death for the sake of more valuable boys, who are still being

*The Native Tribes of South Australia. E. S. Wigg & Son, Adelaide, 1879.

suckled, though three or four years old, or even more. A female infant just born was thus about to be destroyed, for the benefit of a boy about four years old, whom the mother was nourishing, while the father was standing by ready to commit the deed. Through the kindness of a lady to whom the circumstances became known, and our joint interference, this one life was saved, and the child was properly attended to by its mother, although she at first urged the necessity of its death as strenuously as the father." In other parts of the country the women do the horrible work themselves. They are not content with destroying the life of the infants, but they eat them. One instance is recorded by W. H. Willshire* in which a native woman killed her child, cooked, and ate it. This took place not 400yds. from the spot where the magistrates and police were attending an inquiry into charges brought by the missionaries against the police on the Finke river. The police did not know of this at the time it was done. More instances of a like nature could be mentioned, but one is sufficient. Other practices are followed by some of the tribes which must interfere largely with the continuance of the race. Rites are performed on the youth of either sex, but particularly in Central Australia, which destroy the possibility of procreation by those who are subjected to them. In the case of males the result is inevitable; in the case of females it is not so certain, though the rite inflicts permanent physical injury upon them. Wars, epidemic and other diseases, dearth of food, accidents, and cannibalism must be reckoned amongst the causes which make continual inroads upon the numerical strength of the native population, and will ultimately lead to its extinction.

The official returns which relate to population and vital statistics do not include information as to the number of deaths which occur amongst the natives, or the causes that bring them about; but comparison of the numbers ascertained to be in existence at various census periods affords some measure of the progress of their decay. Nothing certain was recorded respecting their number before 1876, and it was then ascertained that 3,953 aboriginal natives were alive within the limits of the settled districts. In 1881 there were 3,646, and in 1891 3,134. Between 1876 and 1891 819 deaths have taken place amongst them, giving a decrease of 20·71 per cent. The enumeration of 1881 shows that there were 307 fewer aborigines alive than there were in 1876, the decrease for the five years amounting to 7·79 per cent. Between 1881 and 1891 516 natives had died, showing a decrease of 14·04 per cent. in the ten years. As far, then, as statistics go it seems that the blacks are fading away in the settled country at the rate of about 1½ per cent.

* The Aborigines of Central Australia. Adelaide, 1891, p. 39.

per annum, so that in another half century the probability is that there will not be a solitary blackfellow left. Wars, want of food, and cannibalism must be eliminated from the causes which operate against the survival of the aborigines in the settled districts. Wars and the incentives to war died away as the tribes died out. Care is taken by the Government that those who are in need shall not be left uncared for; and cannibalism, which never prevailed in the south to the extent that it does in the north of Australia, has completely disappeared. On the subject of infanticide nothing can be said, except that the proportion of children to mothers and fathers remains about the same now as it was fifty years ago, when Eyre was Protector of Aborigines. Amongst the natives who are within the influence of mission institutions it may be believed that for many years it has ceased to be practised. But, as Mr. Taplin, who had charge of the mission station at Point McLeay, wrote: *"This terrible crime of infanticide is covered up and concealed from the whites with extreme care. The bush life which they lead affords every facility for so doing. I was myself for some time in ignorance that it existed to such an extent as it does." It must be borne in mind that probably not one-fourth of the natives who wander about the country are under the control or influence of the institutions which have been established for their benefit, and not a great deal is known of their actions when they are by themselves in the bush Old men of the tribes are tenacious of their early customs, and cannot be induced to relinquish them. Moral influences are possible amongst the younger ones only. The mutilations which are inflicted, upon males especially, are not known in the extreme north, nor in the south. They are mostly practised in Central Australia. Unfortunately so little has been brought to light with regard to the aborigines of that large tract of country that it is at present impossible to define the limits within which the usage is confined.

The irruption of the whites into the territories of the blacks has contributed to some extent towards the disappearance of the native races. The territories were theirs, and they were sufficient to sustain the wild animals on which, for the most part, they fed. The occupation of the land drove the game away, and the cultivation of the soil, as it went on, exterminated the roots which formed some portion of their food. They thus became by degrees entirely dependent on the settlers, and by so so doing fell into some of the habits of white people, harmless, perhaps, to them, but highly detrimental to the natives who were not accustomed to them. Clothing, unsuitable food, the use of strong drinks (for which they very rapidly formed a liking), the loss of their wonted free life, and the contraction of diseases not previously existing amongst them, did

*Native Tribes of South Australia. Adelaide: 1879, p. 14.

their work. Eyre is emphatic as to one cause. Archdeacon Hale, *afterwards Bishop of Perth, in Western Australia*, who founded the Poonindie institution, wrote as follows (the date is not given, but it is apparently in 1850):—"In an unhealthy season in which there would be amongst Europeans an unusual prevalence of sickness (as in influenza, &c.), but perhaps no unusual number of deaths, the sickness amongst the natives would assume a much more serious and deadly character, and the number of deaths amongst them would be very greatly increased. . . . With reference to the rapidity with which certain tribes die out and disappear . . . I may, as an instance, refer to the tribe which formerly occupied the country whereon the city of Adelaide and the surrounding townships now stand. In 1836, as I have been repeatedly informed by old colonists, there dwelt in that country a numerous tribe. Fourteen years from that time, viz., in 1850, when my acquaintance with the natives commenced, the tribe was on the very verge of extinction. The members of it had, in that short time, become so few that, although I have received from Adelaide for this institution sixty-seven individuals, six only belonged to the tribe I speak of. . . . I knew also, from my own observation during my residence here, that the process of extinction amongst the natives of this district has been going on at a very rapid rate "* Other authorities might be quoted, all to the same effect.

Much stress has been laid upon the supposed fact that the disappearance of the blacks has been in a great degree attributable to acts of violence on the part of the whites, which have thinned and broken down the tribes. This has been asserted in writing and reiterated in speech so frequently as to have carried some conviction of its truth to the minds of many who have had no personal opportunities of investigating the subject. From the foundation of the colony the natives when in and about Adelaide were regarded with care and solicitude by the white settlers. Amongst the earliest of the colonial appointments was a Protector of Aborigines. The blacks did not oppose the settlement of the whites, nor did they molest them. The whites treated them with uniform kindness, and no attempt was ever made to drive them away from their locations. Other tribes—for instance, those which frequented the banks of the Murray and lived in the country adjacent to the overland routes from Victoria and New South Wales to Adelaide, along which sheep and cattle for the new settlement travelled—were hostile and fierce. They stole cattle and sheep whenever they could surprise the parties in charge, and killed as many of both as they could. All this was done

* Aborigines of Australia, by the Right Rev. Bishop Hale, London, published by the S.P.C.K., London.

without any provocation, beyond the fact that the whites with their flocks and herds had come into the country belonging to the hostile tribes, and such an act was always deemed by the blacks, amongst themselves, to be an act of war. The first serious trouble with the natives arose in 1840. In the month of July in that year a brig, named the *Maria*, was wrecked on the south coast, not far from Rivoli Bay. The survivors—ten men, five women, and some children—came ashore. They separated into two parties, one of which crossed the Coorong, when they were set upon by the blacks, who killed them and took possession of all their property. As soon as the news of these murders reached Adelaide Lieut. Pullen, R.N., was sent away with a party of men to investigate the matter. On arriving in the country there was no difficulty in finding several of the bodies of the murdered men and women. They had been partially buried in the sand, and the flesh had been stripped from the bones of one of the victims—a woman. There is very little doubt that it had been devoured by the murderers. On Lieut. Pullen's return the Governor, Col. Gawler, sent out an expedition under the command of Major O'Halloran, Commissioner of Police, in order to chastise the offenders. With the assistance of the Encounter Bay tribe, inquiries were made as to the actual murderers. Four men of the Narrinyeri tribe were clearly identified as amongst the perpetrators. Two of them were shot as they ran away to escape capture, and the other two were hanged, after trial, on sheaoak trees over the graves of their victims in the presence of as many of the tribes as could be collected to witness the punishment. Col. Gawler was censured for sanctioning such an application of martial law. Right or wrong, the executions had a most salutary effect upon the tribes in that part of the country. In the following year, some nine months after this had taken place, a party of men bringing sheep overland was attacked by the Rufus tribe of natives near that part of the River Murray called the North-West Bend. The leader, Mr. Inman, and two of his men were severely wounded, and the sheep they had with them, about 7,000, were carried off by the blacks. Major O'Halloran was again sent out with a force to punish the assailants if they could be discovered, but it returned in a few days without having accomplished anything. Another party was got together under Lieut. Field, R.N., which set out to recover some of the stolen sheep. There was no attempt made to attack the tribes. After nine days' travelling the white men were met by about 200 blacks, who at once attacked and endeavored to surround them. Field had some difficulty in getting away with his small party, after shooting eight of the assailants. Three of the white men's horses were speared and one was killed. None of the sheep were recovered on this occasion. A third expedition was

sent out, under strict instructions not to make war on the natives, and after a journey of three weeks the party fell in with a white man who was one of the survivors of a few overland cattle drovers who had been set upon by the blacks. Three of his men had been killed, one wounded, and all the cattle, about 700, had been driven off. All efforts to capture the offenders were unavailing, and the expedition returned. After this complaints were frequently made to the Government of the conduct of the blacks, which was so hostile that it was dangerous to travel that country with stock. Mr. Shaw was then sent out with a party of twenty-nine mounted men to meet some people who were coming overland, in order to protect them and their stock. They were late in the field, for the natives had already attacked the overlanders, but had been repulsed with a loss of fifteen of their number. A few days afterwards the party commanded by Sub-Inspector Shaw was set upon by a very large number of blacks. They had refused all friendly overtures, probably feeling assured that their large number was sufficient to enable them to overcome the whites. A quarter of an hour's fighting brought the engagement to a close. The blacks lost thirty men killed and ten wounded. A close investigation was made into the case when Mr. Shaw brought his party back to the city, which ended in the complete exoneration of those concerned in the fight from all blame. The appointment of Mr. Eyre as Police Magistrate and Protector of Aborigines at Moorundi took place shortly afterwards, and from that time no further outrages were committed by the natives. These are all the wars, if they can be so considered, which took place between the white settlers and the aborigines. On the Port Lincoln side, in the north-west and far north country, isolated attacks were made upon shepherds, who were speared, and some stations were also "stuck up" by them. The exertions of the police, however, were sufficient in most cases to bring the guilty parties to justice. No doubt some of the aborigines were killed by settlers in the far off country, but wherever a clue could be obtained to those who shot them they were invariably brought to Adelaide to stand their trial for their acts. They were very few, however, and no instance of a conviction is on record. From the above it will be seen that acts of violence committed by the white men upon the natives have had but an insignificant share in contributing to the disappearance of the aboriginal races. Black-fellows are generally well treated by the settlers and are often employed on stations. They make excellent stock riders and careful shepherds whenever they are engaged in that work. They are, however, uncertain in their habits. They may remain in their employment for many months, often for two, three, or even four years, when suddenly their wandering instincts, after being dormant for a period, reassert themselves, and they as

suddenly return to their original courses of life. After their appetite for change has been satisfied they almost always go back to the places where they had previously been at work. At the time of the census of 1891 352 adult males were employed on stations in South Australia, and 420 in the Northern Territory.

Collisions between the whites and the natives have taken place in recent years in the Northern Territory, but the loss of life consequent upon them has been small. Many occurred between exploring parties and unknown tribes which were met with in the unknown interior. Stuart's party was compelled more than once to resort to firearms to drive off their assailants, who otherwise would have killed them all. Mr. John McKinlay also met with his share of trouble on this account when he crossed from Adelaide to Brisbane in search of Burke and Wills, whose journey has already been mentioned. In desultory encounters such as those the loss of life amongst the natives could not have been great, for, unless the natives are in superior numbers, they do not attack in open ground, and small detachments are not difficult to drive away. The most serious business with the blacks in the Northern Territory was the attack on Barrow's Creek station, 1,240 miles from Adelaide, on the Transcontinental Telegraph line, which occurred on Sunday, February 23rd, 1873. The natives belonging to the surrounding country had always been on excellent personal terms with the people who were living at the station, although a couple of months before they had cut the telegraph wires and had speared some horses; but they were always treated with the greatest kindness, and had received flour and clothing, besides other articles of small value to which they might take a fancy. The white people had no suspicion of them and took no precautions against surprise. The blacks had evidently contemplated the attack for some time. A repairing party of eleven men had gone north on duty on the 22nd, and when the blacks thought they were far enough away to be unable to return to render assistance they set to work. About 8 p.m., without any warning, the blacks, who had hidden in the scrub which was within twenty yards of the station, sent a shower of spears, one of which mortally wounded Mr. Stapleton, the officer in charge, who had been sitting in the open ground not far from the station gate. Another officer was speared in the thigh, and a third, who endeavored to run past the blacks into the building, was speared as he ran, and fell dead inside the open square of the station. The natives were afraid to enter the enclosure, and they were fired at through loop-holes in the walls, but with what effect is not known. It could not have been great, because the attack was resumed on the following day. On the Wednesday the repairing party communicated with the station from a point

many miles away, and, on learning what had happened, returned as quickly as they could. About twenty miles from the station they were attacked by a large party of natives, who had been lying in wait for them; they were repulsed with some loss. On the Thursday the return party went in pursuit of the savages, with what result is not reported. Whatever it was, there has been no further hostile demonstration of that kind by the blacks in that part of the country.

The regions of Central Australia are patrolled for the protection of the very few white settlers that live on the cattle and other stations by police officers, who are assisted by native troopers collected from the tribes, without whom they would be of little use. Considering the ferocious disposition of the savages who dwell in that region, order is fairly well kept. Stations are no longer "stuck up" by them, although, as is not surprising, cattle are frequently speared and other depredations committed. Retaliatory measures are certainly taken by the whites when the police are not at hand, but none of them have been sufficiently authenticated to call for the intervention of the Government. The officers who have been stationed in this wild country for years give the blacks a very bad character. One of them says:—* "They are ungrateful, deceitful, wily, and treacherous. They are indolent in the extreme, squalid and filthy in their surroundings, as well as disgustingly impure amongst themselves." This remark applies to the aborigines of Lake Amadeus and the George Gill Ranges. In another place he says:—"They have been described as they were found—lazy, treacherous, and impure; and on the Finke river, where they ought to be better, they are worse than the other tribes which live in the surrounding country." Another officer (Mr. S. Gason), who for some years lived in the country watered by Cooper's Creek (more properly designated the Barcoo river), has written a most interesting account of the *Dieyerie* tribe, and describes their character as follows:—"A more treacherous race I do not believe exists. They imbibe treachery in infancy, and practice it until death, and have no sense of wrong in it. Gratitude to them is an unknown quality. No matter how kind or generous you may be to them, you cannot assure yourself of their affection. Even amongst themselves for a mere trifle they would take the life of their dearest friend, and consequently are in constant dread of each other, while their enmity to the white man is only kept in abeyance by fear. They will smile and laugh in your face, and the next moment, if opportunity offers, kill you without remorse. Kindness they construe into fear, and had it not been for the determination and firmness of the early settlers they would never have been allowed to occupy the country. . . . . . They seem

* Aborigines of Central Australia: W. H. Willshire, Adelaide, 1891, pp. 28 and 40.

to take a delight in lying, especially if they think it will please you. Should you ask them a question, be prepared for a falsehood as a matter of course. They not only lie to the white man, but to each other, and do not appear to see any wrong in it. Notwithstanding, however, what has been said of their treachery, and however paradoxical it may appear, they possess in an eminent degree the three great virtues of hospitality, reverence for old age, and love for their children and parents. Should a stranger arrive at their camp, food is immediately set before him."*

The Lutheran missionaries who are located at Kopperamanna, in the Far North, and on the Finke river, in Central Australia, have formed a very different estimate of the character of the blacks. They believe them to be endowed with far better and higher qualities, and think that they are capable of being civilised and turned into useful men and women, and entirely weaned from their barbarous habits. The Superior of the Mission of the Jesuit Fathers (the Very Rev. D. McKillop), which is formed in a fertile tract of country on the Daly river, in the Northern Territory, is equally certain that they can be reclaimed and brought easily within the restraints of civilisation. It is to be hoped that their views are correct, and that their efforts may meet with the fullest success. The probabilities are against the realisation of their expectations, but time will solve the question. Some of the gentlemen who devote their energies to the civilisation of the blacks in the wildest parts of the continent attribute the bad features of the native character to the treatment they receive at the hands of the whites. No doubt they see the blacks under much more favorable circumstances than the class of men who form the bulk of the station hands in the far interior, and perhaps, also, they do not attach sufficient weight to those habits amongst the tribes of which they cannot be supposed to be ignorant. The blacks have for years given the station holders an immense deal of trouble. Murder, arson, and cattle spearing are what they have to contend against, and it is hardly to be expected that rough stockmen will be very gentle or considerate to savages who resort to such acts, and which if not punished at once would in all likelihood never be punished at all. A great deal of stress has been laid upon the fact that white men have taken away the blackfellows' women, and upon the bad effect this procedure has upon the males of the tribes. No doubt it is a deep injury, but the following extract from Mr. Willshire's book, quoted above (p. 36), will explain the matter and place it in another light:—" It is a common practice amongst the native tribes to capture and steal females

* Native Tribes of South Australia. Adelaide: E. S. Wigg & Son, 1879, pp. 258 and 259.

one from the other. Such acts, as already stated, are as often followed up by acts of retaliation, not because of any moral injury that has been inflicted upon the blacks who have lost one or more of their women, but because they have lost one or more of their slaves, for the largest portion of the hard work and of the privations of the tribe fall to the lot of the women. When they desire to propitiate one another their women are for the time exchanged, and when they are favorably disposed towards any white men they may encounter the first thing that is done is to place the women at their disposal. Moreover, the lubras themselves will go to the whites; indeed, willing or not, the men compel the females to go after them, and will follow white travellers on foot for miles with their women if the least inducement is held out. There are more males than females amongst the tribes, and if the whites were to take away many more than the number that has gone with them it would be much better for the women themselves. At least they would be fed, clothed, and humanely treated, and that kind of treatment is what they never would receive at the hands of the males amongst whom their lot was cast." The reader will be able to judge from what has gone before how far the active hostility has hastened the decay of the aborigines.

When the whites landed in South Australia tribes of natives were spread over the country surrounding Adelaide for some distance away. According to the accounts of early colonists, they were fairly numerous. They dwelt about Adelaide, Port Adelaide; Brighton, Noarlunga, Onkaparinga, Willunga, Aldinga, Goolwa, and Encounter Bay in the south; at Gawler, Kapunda, Kooringa, on the Gilbert, Wakefield, and Hill rivers, at Clare, and the country between that and the coast, and at Mount Remarkable in the north; at Yorke Peninsula, Port Augusta, Port Lincoln, Fowler's Bay, Venus Bay, the Gawler Ranges, and the country west and north-west of Adelaide. In the east there were the Overland Corner, the Moorundi, Narrinyeri, the Rufus, and the tribes who lived in the neighborhood of Lakes Alexandrina and Albert. Further east there were the Boandik, the Tatiara, Padthaway, Naracoorte, and the south-east-coast tribes, which occupied the country as far east as the Glenelg river, near the Victorian border. These have all disappeared as tribes, and the only memorials of their existence are such records as have been made by persons who were brought into contact with them officially as protectors of aborigines, or conductors of schools instituted for their reclamation from barbarism.

Most of these accounts have been published, and are accompanied by glossaries, but they are all more or less imperfect, and do not afford any great insight into the scope of the dialects to which they belong. Outlines of the grammatical structure of some of the forms of speech

were compiled and published very early in the history of the colony, but they are now unobtainable. From all that can be gathered, it seems as if the various forms of speech—or dialects—in Southern Australia, at least, had a common origin. As far as is known, they are deficient of the following consonants :—*c*, *f*, *h*, *j*, *q*, *s*, *v*, *x*, and *z*. All the words terminate in vowels. The nouns have the singular, dual, and plural numbers, and three genders—masculine, feminine, and neuter. There is, however, another gender, or an inflection almost equivalent to another gender, which includes two or more persons or things of opposite or different genders when spoken of together or collectively. In numeral adjectives all the dialects are defective. They seldom go beyond the first three. In counting, the natives formed combinations of the three; four would be expressed by the equivalent for two two; five by two, two, and one; six by two, two, two, &c. Beyond twenty expression does not seem to extend. Above that number the idea of a multitude is all that can be conveyed. The nomadic habits of the blacks and the strange way in which they divide into small groups and scatter through the country would not require the use of words to denote large numbers of men, women, or children, for they rarely gathered together in masses except on special occasions, such as those of corrobborees or fights, or on the occurrence of some extraordinary event which might prompt them to assemble. The native languages possess inflections which many European tongues do not. They are wanting in abstract terms and generic words. Dr. Wyatt observed that one of the greatest impediments to becoming acquainted with an aboriginal dialect was the general indifference of the natives and their slovenly habit of clipping or contracting the words in ordinary use, and of substituting different vowels and hard for soft consonants, or *vice versâ*. Dr. Wyatt also stated that the natives (of Adelaide and Encounter Bay) evinced great facility in compounding words, in forming new ones to represent objects previously unknown to them, and also in inventing figurative expressions. Mr. Taplin, however, expresses a different opinion on this point. In speaking of the Narrinyeri tribe, who were near neighbors to the Encounter Bay tribe, and had considerable intercourse with them, Mr. Taplin says that the principal characteristics of the language are ellipsis and the abbreviation of words, but that he could not discover in any of the dialects he had examined any traces of figurative expressions. "Amongst the Narrinyeri the poetical kind of speech so much admired by the Maori is not to be found. I do not know a single phrase worthy to be called a metaphor." Further, "that it would not be possible to translate the Scriptures into the aboriginal tongue without the introduction of many foreign words." The necessity for the whites to make a special study of native forms of speech soon

disappeared before the ease and rapidity with which the natives acquired the language of the white colonists, or, at least, enough of it to enable them to understand when spoken to and to convey a knowledge of their ideas and wants to others. The English spoken by the blacks, however, was of a strange kind. It bore as much resemblance to the Queen's English as the pigeon English which is met with in Canton and in the Straits Settlements amongst the Chinese. For this the aboriginal is not to blame; he merely learned and repeated that which was taught him. The pigeon English of the blackfellow owes its origin to the sapient notion (put into practice by the early settlers) that savages who were utterly ignorant of English of any sort would more readily understand a jargon of broken English, which the speakers had to invent as they went on, than the kind of English they commonly used amongst themselves. The natives who have been instructed at Point McLeay and other mission stations speak excellent English and do not resort to the "lingo" which prevails amongst the blacks who wander about the country at will. According to Mr. H. E. Meyer, in his sketch of the Encounter Bay tribe, the natives say that "Languages originated from an ill-tempered old woman. In remote time an old woman named Wurruri lived towards the east, and generally walked with a large stick in her hand to scatter the fires round which others were sleeping. Wurruri at length died. Greatly delighted at this circumstance, the natives sent messengers in all directions to give notice of her death; men, women, and children came, not to lament, but to show their joy. The Raminjerar were the first who fell upon the corpse and began eating the flesh, and immediately began to speak intelligibly. The other tribes to the eastward, arriving later, ate the contents of the intestines, which caused them to speak a language slightly different. The northern tribes came last, and devoured the intestines and all that remained, and immediately spoke a language differing still more from that of the Raminjerar."

Space will only permit of a brief and general sketch of the South Australian blacks and some of their most remarkable habits and customs. The males generally are strong and well formed, and between 5ft. and 6ft. in height, but seldom more than 5ft. 8in. The women are, of course, smaller, 5ft. being about the average, though some few are taller. They have broad foreheads, wide mouths, and flat noses. Their eyes are dark and piercing, and set deep in the skull. The facial angle is about 85°, according to Professor Owen.* The hands and feet are not large and are

* The incisor teeth of the aborigines show a peculiarity not observable in the teeth of Europeans. It was first noticed by Eyre. Subsequently attention was called to the fact by the author of this work. His view was supported by Professor Tate, who referred to a skull procured from Eucla to confirm it. On this subject H. M.

well formed. The development of the lower limbs is scanty, the calves of the legs and the muscles of the thighs being much less robust than the limbs of white men of equal height. The chest is from 34in. to 36in. in circumference. The body is well shaped and the figures (of the men) are generally good. Their carriage is erect and their gait graceful and elegant. Their features are not handsome according to European ideas, but those of the women are ugly in the extreme, yet not actually repulsive. Their physical development is by no means equal to that of the men, but the lives they lead and the treatment they are exposed to will account for a great deal. Sir George Grey, K.C.B., Mr. Eyre, Mr. Taplin, and the Rev. D. McKillop, all of whom have had intimate knowledge of various Australian tribes, speak in high terms of their intellectual capacity. Grey said that they were as able and intelligent as any other race of men he was acquainted with. Others, however, have formed strong opinions on the other side. The value of these depends much upon the conditions under which they may have been formed. Whatever ability or intelligence they may possess, they have certainly not yet produced very remarkable results. As long as they are under tutelage and in the care of the conductors of the missions they generally turn out well. It seems, however, as if they rarely contract ideas and habits of self-reliance sufficient to enable them to take their places in the world as civilised men. Isolated instances have been occasionally known where this has occurred, but the bulk of the natives who come under the control of the white men remain so, and do not strike out or adopt an independent course for themselves. In the last report of the Aborigines' Friends' Association (1892) an instance is given of a native educated at

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Shand, Esq., M.D., of Port Elliot, wrote—"In order of dentition and in differential characters the permanent teeth of the aborigines are similar to those of their white brethren, the general conformation being more substantial. Approaching middle life the surfaces of the incisors are very much altered in appearance, and can generally, about 40, be found entirely different from European races. Gradually the incisors become more and more altered in aspect, and in old age are most interesting. Towards middle life they are not unlike the nippers in the horse, as incisors are there commonly called, but as the wear continues the surface is not only flat, but the relative measurements change, and the teeth measure more from backwards than from side to side. The resemblance to the horse is further exhibited in the central brown mark as seen in aged horses. I do not believe that any section of the teeth in the young adult could be shaped to the condition presented in middle life, as the measurement from before backwards is distinctly increased by use. The process I regard as almost physiological." Mr. Taplin, of the Point McLeay Mission, did not agree in the opinion that the teeth of the aboriginal differed from those of the white, although he acknowledged the alteration. He attributed the change "to the attrition of masticating fibrous substances." Whatever the cause may be, the facts are as stated above, but the subject of the teeth of the aborigines deserves a more careful and minute scientific examination than has yet been bestowed upon them.

the mission who lived in an aboriginal section and was able to support himself and his family. The Right Rev. Bishop Salvado, of New Nursia, in West Australia, mentions other instances, but these are exceptions to the general rule. The natives, it cannot be denied, are naturally indolent and cannot easily be trained into settled habits of industry. They are physically unsuited to severe labor. The Right Rev. Bishop Hale, in writing about the natives at the Poonindie Station, says that "in consequence of their want of stamina or power of endurance the working hours at Poonindie were much shorter than the actual working hours of white men." They can travel long distances with little food or water, and in the bush are able to endure privations as well as any white men, but continuous and protracted daily labor is generally beyond their powers. In their native state the hardest work they ever do is hunting. In this kind of labor there is excitement, and the reward is certain and directly personal: such conditions are not often attached to the kinds of labor which civilisation exacts from a worker. One reason why the faculty of self-dependence amongst the natives who have been trained and properly instructed has not been better exemplified may be traced to the fact that they disappear from the face of the earth before the civilisation which has been developed in them has had time to bear fruit.

As regards marriage customs, the Rev. Mr. Meyer says that the girls are given in marriage at the early age of ten or twelve years. It is more an exchange than a ceremony. Marriages always are between persons of different tribes and never in the same tribe. The father, if alive, gives his daughter away, but generally she is the gift of the brother. The girls have no choice in the matter. A man who has several girls at his disposal speedily obtains several wives. The man regards them more as slaves than in any other light, and employs them entirely to his own advantage. They are obliged to provide him with shell fish, roots, and edible plants. If a member of another tribe should arrive and see anything he may desire to obtain, he may make a bargain with the owner by letting him have one of his wives for a longer or shorter period. This corresponds with what Mr. Willshire has stated with regard to the tribes in Central Australia. Mr. Meyer does not mention the fact, but if, as must have been the case, many of the men had no wives at all, it was a common occurrence for them to steal one from some other tribe when a suitable opportunity presented itself. The fact that marriage does not take place between members of the same tribe, or is forbidden amongst them, does not at all include the idea that chastity is observed within the same limits. In fact, chastity as a virtue is absolutely unknown amongst all the tribes of which there are records. The buying, taking, or stealing of a wife is not at all influenced by considerations of

antecedent purity on the part of the woman. A man wants a wife and he obtains one somehow. She is his slave, and there the matter ends.

At a certain period the boys undergo the process of being made men. Sometimes they are covered with blood drawn from the arms of the older men and allowed to trickle all over the boys' bodies. This was practised by the Adelaide tribe. The hair on the face and body was plucked out, and other rites performed, from all of which women were most rigorously excluded. At these times circumcision was performed amongst certain of the tribes, but the custom was not universal. Other mutilations, which have been referred to elsewhere, are also inflicted in the course of such rites. These practices, however, are not in use amongst the southern tribes. The ceremony of tattooing is performed at the age of early manhood, and is frequently afterwards repeated. The flesh is cut several times so that the cicatrix becomes elevated considerably above the surrounding flesh. It is done with the shell of the mussel, a sharp stone, or a piece of glass. The women undergo the operation also. The marks are made on the shoulders, arms, back, and breast, but not on the face or below the waist. In the southern part or the province, beyond that of tattooing, the women are not subjected to any special ordeal, but they do not undergo the process without considerable resistance. Youths of the Adelaide tribe passed through four stages before they became men. From the first to the tenth year they were let alone, though not permitted to eat of certain kinds of food. After the tenth year they were covered with human blood, as above stated. Three or four years afterwards they were circumcised, and kept away from all the women and children and fed only on vegetables until they had recovered. The fourth stage was that of tattooing, which took place about the twentieth year. The fifth stage could only be attained by grey-headed old men. The rites on these last occasions have not been described. They are conducted with the utmost secrecy.

The funeral ceremonies differ considerably in different localities. The Adelaide tribe, according to Eyre, used to envelop the corpse of a dead person in the clothing that belonged to him, and then place it on a kind of bier formed of the branches of trees. It was then carried upon the shoulders of some half dozen others to the places the deceased had frequented. Under the bier another native was concealed, who spoke to the corpse and inquired who it was that had killed him. If the reply was "No one" the business ceased and the corpse was buried. If it was answered that some one had killed him, the corpse was moved round with the bier by supernatural agency, if the slayer was supposed to be present, so that one of the branches touched him. A fight then took

place on the spot or within a day or two afterwards. The body, when removed from the bier, was laid in a grave from 4ft. to 6ft. deep with the head to the west. Children of tender age who died (not those who were put out of the way) were not buried for months after death. They were wrapped up and carried about by their mothers until they became dried up, when they were buried.

Amongst the Encounter Bay and the Narrinyeri tribes young and middle-aged persons were disposed of thus:—"As soon as the person is dead the knees are drawn up towards the head and the hands placed between the thighs. Two fires are kindled, and the corpse is placed between them, so as to receive the heat of the fires and the sun. After a few days the skin becomes loose and is taken of. . . . After this all the openings of the body are sewn up and the whole surface rubbed with grease and red ochre. Thus prepared the corpse is placed upon a stage in a hut so arranged that the head and arms can be tied. It is then placed with the face to the east and the arms extended, and a fire is kept constantly burning beneath. It remains thus until it is quite dry, when it is taken by the relations, packed in mats, and then carried from one place to another—the scenes of his former life. After having been carried about thus for several months it is placed on a platform of sticks and left until completely decayed. The head is then taken by the next of kin and serves him as a drinking vessel. . . . . . Rather aged persons are not treated with all the ceremonies above mentioned, but are merely wrapped up in mats and placed upon an elevated platform formed of sticks and branches supported by a tree and two posts, and after the flesh has decayed the bones are buried. The very old are buried immediately after death."—(Meyer.) "The mode of burial observed by the Port Lincoln natives is described by themselves as being attended with many ceremonies, which are sometimes dispensed with, as was the case with an old man, the only one I have seen buried. A pit about 5ft. in depth and only 4ft. in length was dug; on the bottom some dry grass was spread, and on this the body was laid with the legs bent upwards. The head was placed towards the west—a custom that is always observed, and is founded on the belief that the soul goes to an island in the east. The body is covered with a kangaroo skin and strong sticks are placed lengthwise over the mouth of the grave, one end being stuck in the earth a little below the surface, the other resting on the opposite side of the grave. On these the earth is put, so as to leave a space between them and the body to form a mound of earth over the grave. A few branches or bushes carelessly thrown round the mound complete the ceremony."—(Schürmann.) The funeral rites of the Dieyerie tribe, inhabiting the country about the Barcoo and Lake Hope in Central Australia, are unlike

those which have been mentioned above, and the account given by Gason is the only published record of the burial ceremonies of the natives in that part of the country:—"When a man, woman, or child dies the big toes of each foot are tied together, and the body is enveloped in a net. The grave is dug to about 3ft. and the body carried thither on the heads of three or four men. On arrival it is placed on its back for a few minutes. Then three men kneel down near the grave whilst other natives place the body on the heads of the kneeling men. One of the old men, usually the nearest relative, takes two light rods, each about 3ft. long, holds one in each hand, standing about 2yds. away from the corpse . . . . and questions it as to how he died. The men who sit round speak or interpret for the dead man, and, as opinion prevails, give some fictitious name of a native of another tribe. When the old men stop beating the rods, called 'coonya,' the men and women commence crying, and the body is removed from the heads of the bearers and is lowered into the grave, into which a native, not related to the deceased, steps, and cuts off all the fat adhering to the muscles of the face, thighs, arms, and belly, and passes it round to be swallowed. . . . The order in which they partake of their dead relatives is: The mother eats of her children; brothers and sisters in law eat of each other: uncles, aunts, nephews, nieces, grandchildren, grandfathers, and grandmothers eat of each other; but the sire does not eat of his offspring or the offspring of the sire. After eating of the dead the men paint themselves with charcoal and fat, marking a black ring round the mouth. The women do likewise, beside painting two white stripes on their arms, which marks distinguish those who have partaken of the late deceased, the other men smearing themselves all over with white clay to testify their grief. The grave is covered in with earth, and a large stack of wood is placed over it. The first night after the burial the women dance round the grave, crying and screaming incessantly till sunrise, and so continue for a week or more. Should the weather be cold when a native dies fires are lighted near the grave so that the deceased may warm himself, and often they place food for him to eat. Invariably after a death they shift their camp, and never after speak of or refer to the defunct." This custom of avoiding all mention of the dead is universal over all Australia, as far as the tribes are known, and it is not likely that tribes that have not yet been met with pursue a different practice. It is carried to so great an extent that persons having the same name are called by others temporarily given to them or by any remaining names that may belong to them. They even change the names of places, animals, and things of every description which may have a name similar to that of a dead person. This custom creates considerable confusion in the forms

of speech, and presents a very great difficulty to any stranger who desires to master any of the dialects.

The dwellings of the blacks are of the most rude kind; they are simply boughs dragged together so as to keep off the wind, and sometimes daubed over with clay or earth to keep out rain. The entrances to these werlès (or wurleys) are so low that the people must go on their hands and knees to enter them. Fires are always alight in front of these primitive dwellings, and they serve various purposes. They are supposed to keep off evil spirits at night, and are always available for cookery of anything that may be wanted. Fire is procured by friction. A small piece of soft wood, such as the spathe of the grasstree, is laid upon the ground, and a piece of pointed hardwood is pressed into it and rubbed rapidly between the hands until a little red hot spark appears; this is gently blown with the breath to spread it, and a little dried grass, gum leaves, and fine bits of stick are added by degrees until a flame is raised, when, of course, the business is done. The process appears to be exceedingly simple. The black brings fire in a very short time; but, like everything else, the art requires to be learned, and white men, with all their superior intellect, find that it takes a surprisingly large amount of practice before the knack can be acquired.

The natives are almost entirely independent of clothing; both sexes wear, or are supposed to wear, girdles with fringes attached to cover the front part of the body. In very cold weather some of them have kangaroo, wallaby, or opossum skins, the latter from their smaller size being neatly sewn together with sinews of kangaroos. They wear no coverings on their heads. It seems surprising to white people to see them moving about without any protection from the fierce heat of the sun in the height of summer, without apparently experiencing the least inconvenience from it.

The weapons and implements used by the blacks consist of clubs, spears, wommerahs (or throwing sticks), boomerangs, and shields. Some of the tribes, notably those on the Murray and the Lakes, and on the south coast, have nets of their own manufacture. It seems strange that the Port Lincoln blacks, who lived near the sea and procured much of their food by fishing, had none until the white folks came. The women have sharp sticks, which are used for digging up bulbs and roots, for it is their business to provide vegetable food for the males. For war purposes most of the tribes have shields. These are about 2ft. long and oval in shape. The handles are placed transversely in the centre, by which they are held when in use. They offer no protection to the body, but they are useful instruments for warding off spears in fights, and the dexterity with which they are handled is remarkable. The spears used by the natives

are made of wood or reed, the latter topped with hard wood, charred and scraped to a point. Some of them are barbed on one or both sides, the number of barbs varying according to the length of the weapon. The barbs are sometimes pieces of wood firmly fixed to the shaft, and sometimes of pieces of flint or other sharp stones. At the end of the spear a notch is cut. The wommerah, or throwing stick, varies in length according to the length of the spear, and at one end a kangaroo's tooth is fixed so as to fit into the notch as the spear is prepared for throwing. The wommerah is used as a lever to add greater force to the missile than could be given by the unassisted arm and hand. Barbed spears are not generally employed in the fights which take place amongst the natives themselves, though they have been used with deadly effect upon Europeans who incurred their vengeance. It is quite impossible to draw out a barbed spear from the body or limb of any animal or being that may be pierced by one. It must be either cut out of the muscle or else pushed through till the barbs are clear of the flesh, when the barbed end is cut or broken off, and the rest of the weapon is then drawn out without difficulty. Some of the tribes use stone hatchets and knives fashioned out of similar material. No trace of iron or other metal has yet been discovered amongst them, and no word to signify any metal can be found in any of their dialects.

The boomerang is a weapon peculiar to the Australian native. It is a flat curved piece of wood, varying from 18in. to as much as 3ft. or 4ft. in length. A piece of a root possessing the requisite curve is found, and is then charred and scraped down to the required degree of thinness. It is thrown by hand, and mounts to a great height in the air; it has the singular property of returning to the point from which it was cast. It is used to strike enemies or game that may be behind. It is a formidable weapon, and inflicts serious and often fatal injuries. Prior to the arrival of the whites the natives did not know the use of fish-hooks. The fish they captured were taken in nets (where nets were in use), by spearing them in shallow water or from bark canoes, or by driving shoals of fish before them with boughs into very shallow water (as at Port Lincoln) and then throwing them out by hand on to the beach, where they were picked up by the women and others who were waiting for them. Large game, such as kangaroos, emus, &c., were cunningly stalked. One or more blackfellows hidden behind bushes would make slight noises, like the breaking of small twigs, to attract the animal's attention, while another would steal slowly, spear in hand, towards the game, his body being all the while concealed by a large bush carried in advance in the left hand; as soon as the hunter got near enough he would hurl the spear with all his force, and the aim

was rarely missed. At other times the game was rounded up by beaters and driven past places where the hunters were lying in ambush, when the prey was either speared or knocked over by clubs as might be most convenient at the moment. Opossums are taken from their holes in trees. The hunter looks for the marks of the animal's claws on the bark, and, if fresh, he ascends the trunk by cutting notches in the thick green bark at intervals deep enough for the insertion of the big toe. A short hard spear thrust into the bark furnishes a support while cutting a notch. When the notch is cut the stone axe is driven in the bark as a support whilst the spear is being withdrawn and driven in a little higher up. A tree is scaled very quickly, and apparently without difficulty, in this way. The next thing is to explore the hole with a stick or spear. If the opossum is there, the hunter feels his way cautiously until he is able to thrust the pointed stick or spear through its body, when it is easily taken out. This last operation has some risk in it, because opossums are very tenacious of life and, if not disabled, bite savagely. There is little fear of the game escaping, because opossums do not leave their holes until dusk, night being the time when they come down from the trees to feed on the ground.

The food of the aborigines is multifarious. Animals, birds, fishes, reptiles, grubs, and insects (such as white ants), roots, and indigenous fruits are all laid under contribution for their sustenance. Some kinds are not used at all as food, others are forbidden to females at all times and to boys and youths until they are made men, when they may eat whatever they feel disposed to eat. Snakes and lizards are much prized; the former, however, are not used unless the blacks who may eat them have either killed them themselves or seen them killed. They have a notion that the snake can bite itself, in which case the flesh is believed to become poisonous. The cookery of the natives is very simple. They either roast their food on embers or steam it in ovens. The oven is a hole dug in the ground, in which a fire is kindled and allowed to burn down to hot cinders. Stones are placed on them to make a flat surface. On this comes a layer of damp grass, then the food, then more grass, which is finally covered over with earth. In a short time a stick is passed through the mound down to the hot stones, and into the hole so made water is poured sufficient to generate a great deal of steam without quenching the fire. When the food is supposed to be cooked the earth is carefully removed and the dinner or meal is disposed of.

Of the religion of the aborigines little can be said. They all believe in one or more spirits of evil, and are in great dread of them, and they have a vague idea of a future state. Fire is supposed to keep the evil spirits away, and few blacks will move about, even from hut to hut, at

night without taking a firestick with them for protection against their influence. They have no distinct notion of one Supreme Almighty Creator who made the universe and rules over it. Their superstitions are almost as various as the tribes which entertain them. Many of them are given at length in "The Native Tribes of South Australia," mentioned in a former page, but are too long to be inserted here. The natives are easily impressible, and it does not seem an arduous task to make them assent to the doctrines of Christianity. The difficulty is to induce them to practise the requirements of the Christian religion. In order to accomplish this it is indispensable that they should be entirely weaned from their original habits and customs. This is absolutely impossible as regards the old men of the tribes, who rule over everything. The younger ones are more practicable, but to reach them they must be completely freed from the influences of the old people. Unless this can be done they are constantly tempted to rejoin their tribes, and if they do they invariably become worse in every respect than they were before. Mr. Taplin said in 1879:—"There are now three classes of natives—old blacks who hold fast to the customs of the tribes; the natives who have imitated the worst vices of the Europeans and become drunkards (these have neither religion or morality and are utterly lawless); and, lastly, the Christian natives, who are every year increasing in numbers and are the healthiest of their race." It has been shown that the aborigines as a whole have greatly diminished in numbers since Mr. Taplin wrote, but whether the Christian natives taken separately have increased at all, or to what extent, there is no information.

The aborigines have amusements of their own. Wrestling, ball play, spear throwing, &c., are practised by them, but chiefly by the younger men. The most important is the corrobboree, called "kooré" by the Adelaide and Encounter Bay tribes and "ringbalin" by the Narrinyeri. This is a dance in which both men and women take part, but only a very few women join in at any time. What its special signification may be depends upon the circumstances under which it takes place. War, hunting, and other pursuits and ideas are represented at these festivals. They nearly always occur when the moon is full, but fires are lit all around the spot where the dance is held. The males paint themselves with white clay on the face, arms, ribs, thighs, and legs so that the outlines of the bones are marked. Bunches of twigs with green leaves, and sometimes of feathers, are tied round the legs and ankles, and their heads are ornamented with plumes or tufts of grass. The markings of the men with white clay are different in different tribes. The women are seated round the scene of action, and sing a monotonous chant, beating time on opossum rugs folded and resting on their knees. Mr. Taplin

says:—"In most 'ringbalin' the men only dance; the women sit on the ground and sing. The songs are sometimes harmless and the dances not indecent, but at other times the songs will consist of the vilest obscenity. I have seen dances which were the most disgusting displays of obscene gesture possible to be imagined. . . . The corrobboree of the natives is not necessarily a religious observance; there is nothing of worship connected with it. It is used as a charm to frighten away disease, and also in some ceremonies: but its real character is only that of a song and a dance." Many of the songs which are sung on these occasions have no meaning. Some of the old men say that they were handed down to them by their ancestors. If they had a signification at any time it has been lost. As far as the musical powers of the natives are concerned, Dr. Wyatt says that they possess a correct musical ear, and have learned to play tunes on the violin and to sing simple melodies. In Mr. Taplin's "Aboriginal Folklore," one of the corrobboree songs has been reduced to musical notation. There is nothing in it, except that it is a specimen of the musical expression of primitive savages.

All of the known tribes believe in sorcery, but it is practised by them in different ways. The most effective as well as the most prevalent form is that of the bone. This instrument is either a bone of some animal, bird, or fish of which an enemy or a person against whom he has a grudge has eaten or a small bone of a human leg. This is scraped to a point and inserted into a lump compounded of fish oil, red ochre, the eye of a Murray cod, and a piece of human flesh. This is stuck into a human corpse in order to give it deadly potency from the decomposition of the body. When it is wanted for use the owner sticks the bone into the ground near a fire, so that the lump may gradually melt away. The person who plants it firmly believes that as it melts it will produce disease in the person for whom it is designed, no matter how far away he may be. The entire melting of the lump is supposed to cause death. Amongst the Dieyerie tribe the bone is pointed towards the place where the intended victim is supposed to dwell. When a native finds that he has got the bone he is certain that his doom is pronounced, and he gradually pines away and dies. A black will follow another who has given the bone to one of his tribe for an immense distance in order to avenge his death. Secret assassination is resorted to by some of the natives. They will puncture a foot or other part of a sleeping enemy with a sharp bone poisoned by being placed in the body of a dead person or animal. This being done, the death of the victim is almost certain. Another mode of dispatching a foe is to creep upon him whilst asleep with a thin bone scraped very fine and sharp, which is thrust into the neck above the collar-bone in a slanting direction for 6in. or 8in. and

then withdrawn, the finger and thumb of the left hand being ready to close the wound. The orifice is kept closed by pressure for a short time, and a little earth is taken up and sprinkled on the part, so that no blood can be seen.—[Wyatt.] The natives believe that the bone has no power over white men.

North American Indians have their medicine men, African negroes their rainmakers, and the Australian native possesses both. The medicine men cure all diseases by sucking the part supposed to be affected and extracting from the spot pieces of stick, stones, string, charcoal, or anything else which can be conveniently concealed by the operator whilst his incantations are proceeding. Mr. Taplin mentions one instance where a white man allowed himself to be operated on by a native doctor for a rheumatic pain in his shoulder. The result of the process was the apparent extraction, after various charms, besides whistling and dancing about the patient, of a small piece of the leg of an old chair which had been kicking about the back yard for weeks before. Some of the doctors bind up fractured limbs with splints and bandages [Eyre], and others case them in a coating of clay, which has the same effect as the starch bandage of modern surgery. The process of rainmaking is accompanied by various charms and incantations; all of them are mysterious, and vary according to the ingenuity of the men who perform them. In Central Australia, according to Gason, it is a most solemn function, but the details are too long for insertion here.

A kind of rude art prevails amongst all the tribes, such as the fashioning of their spears, shaping clubs and boomerangs, which are all done with sharp stones, and must require an immense amount of labor. The natives on the southern coast and on the Murray make nets, canoes, and very handy baskets and mats. In North-West Australia strange paintings have been discovered on the walls of caves, but whether these are the work of the aborigines is by no means certain. No traces of any permanent marks or carvings upon wood or stone which would indicate the smallest idea of writing have been found anywhere. The blacks signal to each other by means of fires, which give off a considerable amount of smoke, and, as far as their meaning has been authenticated, they seem merely to denote the whereabouts of different sections of tribes who are scattered at distances apart, or the occurrence of something unusual which might perhaps prompt those who see them to make for the place whence the smokes arise. It has recently been claimed for the smoke signals that they afford means of sending abroad special items of news, and that they are not only various in their characters but strangely complex and at the same time effective. Of these it may be sufficient to say here that they have not yet been supported by evidence sufficient.

to establish the existence of any such signalling codes amongst the natives as a reliable fact.

Several institutions have been established for the civilisation and training of the blacks in South Australia. Native schools were founded in Adelaide in the very early days of the colony, but they were not attended with any great degree of success. The adult natives who hung about Adelaide often got the children away for days and even weeks together, and most of the good that was done to them was neutralised. Moreover, there was no means in existence by which the young who had been properly looked after could be guided and protected after they had left school. To meet this difficulty Archdeacon Hale, subsequently Bishop of Perth, in Western Australia, established the Poonindie mission near Port Lincoln, which was carried on by him, with Government and other assistance, for many years. The mission was established in 1850 and is still in existence, though the Government grant-in-aid has ceased for some years. In its time the Poonindie institution has done much good, but, owing to the gradual decrease in the number of natives, limited resources, and other causes, the establishment is not now in a very flourishing condition. The Aborigines' Friends' Association have an establishment at Point McLeay, on Lake Alexandrina, which was founded in 1859 and placed under the charge of the late Rev. George Taplin. It was established for the instruction and evangelisation of the lake tribes of aborigines. The society receives a grant from the Government of £1,000 a year. The operations of the managers have been generally successful as far as they have extended, and there are now about 200 natives living on the station. In the busy season, when wool-washing, &c., are being carried on, the number increases to about 400. The society holds about 4,500 acres of land under lease from the Government, which is used partly for cultivation and partly for depasturing sheep. The area of land, however, is very small, and, not being of good quality, the returns are not great. There is a school attached to the station, with sixty-two scholars on the roll, viz., thirty-four boys and twenty-eight girls, with an average daily attendance of twenty-nine. At Point Pearce, on Yorke Peninsula, there is a mission station under the care of a private religious body. This is not in receipt of any Government aid. The Lutheran missionaries have two establishments in Central Australia—one at Kopperamanna (near Lake Hope) and another at Hermannsberg (on the Finke river). They hold land from the Government on lease, and have a small yearly grant. The missions themselves are in a fairly prosperous condition; but at present the value of the labors of the missionaries amongst the very wild blacks which live around them cannot be properly estimated. Some

years ago a mission was established in the Northern Territory, about seven miles distant from Palmerston, by the Jesuit Fathers. The bad influences to which the natives were exposed by their close proximity to a town inhabited by Europeans and Chinese hampered the clergymen in charge to so serious a degree that they were obliged to relinquish their undertaking there. They have now a station on the Daly river, under the charge of the Very Rev. Donald McKillop, S.J. This mission has a lease of land from the Government, for the purposes of civilising and instructing the natives, and a small annual grant. The undertaking is in its infancy, but those who have the conduct of its affairs are sanguine as to their ultimate success. The real difficulties which beset those who endeavor to ameliorate the condition of the blacks are, in the first place, the influence of the old men of the tribes over those who are brought within the scope of the mission, and the next is the intercourse they are certain to have with the white settlers. Unless these two destructive causes can either be obviated or neutralised, no greater success is likely to attend new enterprises of this kind than has attended those which have been in operation amongst the natives for the last fifty years.

It has been said above that the Australian black is impressible. The evil spirits which terrify him seem to be less powerful than the spirits, evil or otherwise, which attach to the white man. It might be an interesting inquiry to ascertain how much of this kind of thing prevails amongst the civilised blacks. At present the evidences are singularly unsatisfactory. This, however, is a matter which should concern the conductors of the native institutions. Over forty years' experience has not shown to the writer much difference between the blacks as they were and as they are. Well managed they go on very well; without management they take an opposite direction. It is impossible to manage or control them all; and, if they die out, it may be some consolation to those who have interested themselves on behalf of the aborigines to find that human agencies, however much they may strive for good, have not been able to conquer that tendency which asserts itself whenever civilisation and barbarism are brought on one common ground.

THE NORTHERN TERRITORY.

Compiled by Mr. H. D. Wilson.

On the 6th July, 1863, in the twenty-seventh year of Her Majesty's reign, the Northern Territory, until that time a part of the colony of New South Wales, was by Royal Letters Patent annexed to the province of South Australia. The large tract of country thus joined to this colony is described in the patent deed as "so much of our said colony of New South Wales as lies to the northward of the twenty-sixth parallel of south latitude and between the one hundred and twenty-ninth and one hundred and thirty-eighth degrees of east longitude, together with the bays and gulfs therein, and all and every the islands adjacent to any part of the main land within such limits as aforesaid, with the rights, powers, and appurtenances." The area comprised in the land thus annexed is 523,620 square miles, or 335,116,800 acres; and its northernmost point nearly touches the eleventh parallel of south latitude. It is bounded on the north by that portion of the Indian Ocean known as the Arafura Sea; on the south by the twenty-sixth parallel of south latitude, which is the line of demarcation between it and South Australia proper; on the east by the 138th meridian of east longitude, which divides it from Queensland; and on the west by the 129th meridian of east longitude, which separates it from Western Australia. The eastern boundary line of this territory cuts the coast near the mouth of the Wentworth river, on the west coast of the Gulf of Carpentaria, and the western boundary near Cape Domett, east of Cambridge Gulf. The first British settlements were formed in 1825, on Melville Island, and in 1827 at Raffles Bay. In 1837 a settlement was made at Port Essington by Sir Gordon Bremer, which was for the purposes of a military post and a harbor of refuge for distressed vessels. This settlement was abandoned in 1849.

John McDouall Stuart (the explorer) made the passage across the continent in 1862, and in 1884 the tree marked by him and described in

his diary was found by a Government exploring party sent from Port Darwin. Stuart gave such a favorable report of the character of the country on the northern coast that the South Australian Government petitioned the Home Government and obtained the grant specified in the Letters Patent. In 1864 the Government, for the purpose of inducing settlement, sold a large quantity of land at a low rate, and Colonel Finniss, first Government Resident, was sent out with a full staff to execute the surveying. This expedition, from various causes, but chiefly from the landowners objecting to the site selected by Mr. Finniss for the chief town of the new settlement (Escape Cliffs), proved a total failure, and was recalled, after having undergone many changes, in 1868, without having accomplished the survey, thus causing an immense waste of both time and money. In the following year another expedition was fitted out under the command of Mr. G. W. Goyder, by whom the whole of the survey required was completed in 1870. The site then selected was Palmerston, situated on the eastern shore of Port Darwin, a magnificent harbor. Shortly after this Captain Douglas was appointed Government Resident, and a permanent staff selected to assist in the official management of the settlement; he retired in May, 1873, and was succeeded by the late Mr. G. B. Scott, S.M., who remained until the end of 1876, when he resigned, and was followed by Mr. E. W. Price, S.M., who filled the office for a period of seven years. In 1884 the Hon. J. Langdon Parsons, who as member of the Bray Government and Minister for the Territory had closely identified himself with the country, was appointed to the position, which he held until 1890, when he, together with Mr. T. K. Pater, late Police Magistrate of Adelaide, who was appointed at the same time as Judge of the Territory, relinquished office in consequence of retrenchments made in the Estimates of the Territory. Afterwards Mr. J. G. Knight, S.M. and the senior warden of the goldfields, was appointed to the position. Upon the death of Mr. Knight in 1892, Mr. C. J. Dashwood was appointed Resident and Judge.

The chief town in the Northern Territory is Palmerston, very often erroneously called Port Darwin, situated upon the eastern shore of the harbor of Port Darwin, and laid out upon an extensive ironstone ridge, so level as almost to justify its being called a tableland. Its frontage to the sea is formed by white stone cliffs from 60ft. to 80ft. in height above sea-level, fringed with tropical trees of luxuriant foliage, in every imaginable shade. The site chosen for the town is excellent. It commands a magnificent view of the harbor, and cannot be surpassed from a sanitary point of view, its elevated and exposed position ensuring all the advantages of the health-giving sea breezes, and providing natural facilities for a perfect system of drainage. The streets

are wide and well laid out, and the esplanade bordering the town for nearly two miles could not well be improved upon as a beautiful drive or place of recreation. The township is under the control of a district council, possessing a fine stone town hall, in which its monthly meetings are held; the members of the district council are also the local board of health. There is a strong force of police necessary for the maintenance of law and order amongst a large alien population, under the control of Inspector Paul Foelsche and a corporal. Courts of limited and full jurisdiction are held every month, the special magistrates being Messrs. C. J. Dashwood and Paul Foelsche. Messrs. Paul Foelsche (chairman), J. C. Hillson, J. A. G. Little, H. W. H. Stevens, and Dr. O'Flaherty constitute the licensing bench. A circuit court, presided over by a Judge appointed by commission under the Northern Territory Justice Act of 1875, sits every six months, having the same jurisdiction over all cases as the Supreme Court. There is a Government hospital situated on an elevated site fronting the harbor. This is controlled by a local board of management, of which there are five members, with a secretary and a medical officer. The Government Resident's Department consists of the Government Resident and Judge, a secretary, accountant, &c., and a clerk. The Post and Telegraph Office is under the control of the senior (also inspecting) officer for the Northern Territory section and postmaster, having under him five telegraph operators, two entering clerks, and two post office clerks. The Customs Office is supervised by an officer who holds the positions of sub-collector, warehousekeeper, registrar of shipping, inspector of distilleries and public-houses, and issuer of pearl and trepang licences, having under him an assistant landing-waiter, three clerks, and a messenger. The Survey and Lands Office is controlled by a chief clerk and draughtsman.

The Colonial Surgeon, Health Officer, and Protector of Aborigines is assisted by three local health officers. The position of harbor-master and other minor appointments, such as returning officer, teacher of public school, Government gardener, keeper of gaol, stock inspector, &c., are suitably filled. The office of the Eastern Extension Cable Company immediately adjoins the Overland Telegraph Office, and is officered by a superintendent, a senior clerk, and eight operators. The population of Palmerston is estimated at 256 Europeans and 920 Chinese and other Asiatics. There are numerous banks, stores, and hotels, a newspaper (*The Northern Territory Times and Gazette*), and all other trades are fairly represented. The local Botanical Garden, formerly under the control of the curator of the Adelaide Botanical Gardens, is now controlled by his son, and is situated about a mile from the town-

ship, and shows a varied and large collection of different species of tropical and semi-tropical flora. Outdoor amusements are provided for by a well improved cricket ground overlooking the harbor and a lawn tennis court. The harbor affords every facility for rowing and sailing, and a well fenced in swimming bath is situated at the foot of Fort Hill, close to the town. The other towns in the Territory are—

Burrundie, situated on the McKinlay river, and passed by the Palmerston and Pine Creek railway line and Transcontinental telegraph line, was established in 1884, and is distant from Palmerston 124 miles south; the up-country hospital, under the supervision of Dr. Lynch, is located here, together with warden's office, post and telegraph office, and railway and police stations. Courts of limited and full jurisdiction are established, and hotel, store, and other trades are fairly represented.

Union Town, distant from Palmerston 139 miles, is the centre of a large mining district. It has a post and telegraph office, railway station, stores, hotel, and other necessary trade adjuncts.

Pine Creek, the present terminus of the Port Darwin end of the Transcontinental railway line, is situated 146 miles south of Palmerston, on the Transcontinental telegraph line; Mr. Olaf Jensen is resident J.P., and the Government buildings consist of post and telegraph offices and railway station (controlled by Mr. J. M. Johnston, assisted by one operator), and police station; stores, hotels, and other businesses well represented.

Katherine, 216 miles south of Palmerston, situated on the border of fine pastoral land, possesses post and telegraph station. Two constables and a black tracker are stationed here. There are two resident magistrates. Store, hotel, and other trades are represented.

Borroloola, situated on the McArthur river, Gulf of Carpentaria, the distance to the mouth of the river being forty-seven miles, and, by sea, about 700 miles from Port Darwin, was established in 1885. Communication with Port Darwin is maintained by steamer every ten weeks, and overland mails arrive from and are dispatched to Camooweal, on the Queensland border, every month. This township promises in the near future to be one of the most important in the Northern Territory, as it is the natural outlet for a very large tract of pastoral country. The head of the Government here is the warden, Customs officer, and magistrate over courts of limited and full jurisdiction; two constables with black trackers are stationed here. There are two hotels, two stores, and the various other trades which help to form the nucleus of a new settlement are well represented.

Several mining camps are established in the settlement.

Fountain Head is situated a few miles off the Overland Telegraph line, and about 108 miles south of Palmerston.

Brock's Creek, about three miles north of Fountain Head, on the line of railway.

Howley, on the Overland Telegraph line, 101 miles south of Palmerston.

Grove Hill, about four miles from the railway and telegraph line, 118 miles south of Palmerston.

Woolwonga Camp is about six miles to the north of Grove Hill.

Maude Creek, on the Overland Telegraph line, 230 miles south of Palmerston.

Extended Union is about seven miles from the Union railway station, and 148 miles from Palmerston.

There are other settlements, such as the

Roper River, Gulf of Carpentaria, police station and post office.

Anthony's Lagoon, 130 miles east of Powell's Creek, telegraph station.

Camooweal, on the Queensland border, police station and Customs office.

The Overland Telegraph stations are—

Daly Waters, 368 miles from Palmerston.

Powell's Creek, 506 miles from Palmerston.

Tennant's Creek, 619 miles from Palmerston.

Barrow's Creek, 766 miles from Palmerston.

Alice Springs, 937 miles from Palmerston, is the central telegraph station, with one senior and inspecting officer and three operators.

Charlotte Waters, 1,169 miles from Palmerston.

Port Darwin is one of the finest harbors in Australia, second only in magnitude and importance to that which is claimed to be the best—Port Jackson, N.S.W. It was named after Dr. Darwin, who sailed with King in his survey of the north coast of Australia (1818 to 1822), and is situated in latitude 12° 28′ 22″ S., and longitude 130° 50′ 26·04″ E. Vessels of any tonnage can enter, and when inside are perfectly secure, as the harbor is almost completely landlocked. The entrance is two miles wide, with a depth of water of about fifteen fathoms. The harbor itself has a varying depth of from four to fifteen fathoms, is entirely free from obstructions, and has deep water very close in to the shore. It is high water at full and change 5 hours 25 minutes. Springs rise from 16ft. to 24ft.; neaps 2ft. to 12ft.; the tides are irregular, the ebb stream making 40 minutes before high water; the harbor possesses one of the best natural dry docks in the world, a sloping sandy bank at the foot of Fort Hill, on to which vessels can be taken at high water during spring tides

repaired at low water, and floated again on the incoming tide. After the volcanic eruptions in the Straits of Sunda the ocean-going steamer *Menmuir*, when crossing the Arafura Sea from Hongkong, had her propeller blades broken off by contact with vast fields of pumice stone, thrown up by the eruptions. She had duplicates on board, and these were securely fixed on in this natural dry dock. In November, 1886, the new railway jetty was completed. It is a very fine specimen of workmanship, and unique in that it is the only copper-sheathed pile jetty in the colonies, and has some of the longest piles on record. The contractor was Mr. W. Wishart, and the price tendered was £39,817 16s. 8d. The jetty has berths for four vessels—two on each side—and the depth of water should be sufficient for almost any ship afloat, ranging from 38ft. at the outer to 25ft. at the inner end at low water springs. At low tide the deck of the jetty is 31ft. above the water, while at high tide there is only a distance of 6ft. The total length of the jetty is 1,120ft., the narrow portion being 670ft. long by 20ft. wide, while the wide part is 450ft. long and 55ft. wide. The piles used in the jetty run from 70ft. to 86ft. long, with a diameter of from 18in. to 2ft. 4in. The piles and framing are all sheathed with 20oz. Muntz metal up to high-water mark, and bolted together with Muntz metal bolts. Boat steps, fitted with chequer footplates, have been built at the inner end of the wide portion on the west side, and a lighthouse placed at the extreme end. The jetty is fitted with mooring posts and chains. Passenger vessels in want of water, ballast, or ships' stores can always obtain a ready supply in Port Darwin. The harbor until 1880 was a free port, all Customs duties, harbor, light, tonnage, pilotage, and other dues being abolished. In 1880 the Customs tariff of South Australia proper, with one or two additions, was adopted and is still in force.

The Northern Territory is possessed of many magnificent rivers, some of them being navigable for very large ships for considerable distances, and all of them navigable with suitable craft.

The McArthur empties into the Gulf of Carpentaria directly opposite the Sir Edward Pellew Group, its mouth being close to Centre Island. It is navigable for small vessels for fifty miles—three miles beyond the township of Borroloola. Although only navigable for small craft, the fact is not of much importance, since there are excellent harbors at the mouth. The outer bar of the channel, which Captain Carrington considers the best, is approximately south-west, distant five miles from the south-east point of Centre Island. The bar has 6ft. to 7ft. at low water, and the channel carries from 12ft. to 30ft. up to and inside the river proper. The country through which the McArthur flows is held on pastoral lease.

The Roper river empties its waters into the extreme south-west part of the Gulf of Carpentaria, at Limmen's Bight. Its mouth is to some extent sheltered by Maria Island, lying some fourteen miles east of it. The river is navigable for vessels drawing 10ft. to 12ft. for a distance of upwards of ninety miles. The Roper is the best known, and has been frequented more by Europeans than any stream on our northern coast. Stores and material were landed there for the construction of the northern portion of the Overland Telegraph line. The land on both sides of the river for a long distance, during the wet season, is subject to inundation. The Hodgson and Wilton rivers flow into it; the latter is unnavigable and filled with rocks at its junction with the Roper. About three miles from the junction of the Hodgson with the Roper there is a rocky bar extending across it. The country on either side is described as good, grass and herbage being abundant.

The Walker is the only river which empties into Blue Mud Bay. Further to the south-west, in the Gulf of Carpentaria, it was struck by Lindsay in 1883, when exploring Arnheim's Land.

The Goyder, which empties into Castlereagh Bay, is another stream which, from description, will never be of much service to settlers in the vicinity. The banks are lined with dense impenetrable mangroves, and the head of navigation is about thirteen miles from the entrance.

The Blyth, which empties into Boucaut Bay, is navigable for a distance of eighteen miles. The country on its banks is described as fair to good pastoral. At ten miles from its mouth it divides, the western branch being named the Cadell.

The Liverpool, with its tributaries, the Tomkinson and Taylor, empties a few miles from the Blyth, and is also described as running through good pastoral country.

The Alligator rivers, three in number, were discovered in 1820 by Captain Philip King, who named them respectively the East, South, and West Alligators, owing to their similarity. The Government steamer *Palmerston* ascended the South river without difficulty a distance of thirty miles; the East river was examined for a distance of forty-five miles, forty of which can be navigated by small craft drawing from 8ft. to 10ft.; there is a large tidal rise in these rivers, and the streams run with great strength. The three streams empty into Van Diemen Gulf, close to Fincke Bay, on the shore of which Stuart's marked tree was found in 1884.

The Adelaide and the Victoria are the two finest rivers on the northern coast. The Adelaide empties into Adam Bay. It is navigable at tide time for vessels drawing 16ft. to 18ft., and, with the exception of the Beatrice Rock and the bar, the upper reaches are apparently clear

of any obstruction. The only difficulties are at its entrance through Adam Bay and the first reach after passing the narrows. It is accessible to vessels drawing 10ft. to 12ft., and was navigated by the s.s. *Palmerston* for over eighty miles. The river winds through magnificently grassed plains, with lagoons at frequent intervals; Escape Cliffs, the first settlement, was at the mouth this river.

The Daly river, which empties into Anson Bay, is navigable with light draught boats for a distance of about sixty miles. Langdon Island lies just inside the mouth, thus making two channels. There is not more than 3ft. on the bar at low water spring tides; the rise of tide is, however, large, being from 18ft. to 24ft., so that large ships can enter and find good anchorage. Splendid agricultural lands exist on its banks, and the Daly river copper mines are situated only five miles from the bank of the stream. There is an aboriginal mission station on the Daly, under the charge of the Jesuit Fathers.

The Victoria river was discovered and surveyed by Captain Stokes, of H.M.S. *Beagle*, in 1839. It penetrates further into the continent than any other river on the northern coast, and empties its waters into the Indian Ocean in latitude 14° 40″ S. and longitude 129° 21″ E., or twenty miles east of our western boundary. Its mouth is twenty-six miles wide between Turtle and Pierce points. The Victoria is navigable for ships of the largest class for a distance of fifty miles from the sea, and further for a distance of sixty miles with suitable river craft drawing not more than 8ft. This is to a point known as Gregory's Camp, where that explorer camped for some months, and may be considered the head of navigation. The navigation of the Victoria presents little difficulty, even for a stranger. The best route into the river is by Queen's Channel, the entrance to which is between two sand heads a mile apart. The northern sandy head is the extreme of Quoin Island spit; the southern is an isolated shoal and liable to shift, as the Admiralty chart gives the distance as two miles. Speaking of the Victoria river, Captain Carrington says:—"Perhaps the value of this magnificent stream as a commercial highway may be better shown by comparison. In comparing it with others I have only in view its capability as a harbor and its easiness of access. Bearing this in mind, I have no hesitation whatever in saying that the Victoria is far superior to the Thames, Mersey, or Hooghly. The quantity of country that the Victoria is the natural and, I believe, the only outlet for is approximately 90,000 square miles, or, say, 57,000,000 acres. This includes a small strip of Western Australia. Of the major portion of this vast tract little is generally known; it is, however, all or nearly all taken up by pastoralists, and is being rapidly stocked."

The foregoing is an indorsement of the opinion of Captain Stokes, its discoverer. A glance at the map will show that they have not overrated its importance, and it must be admitted that as the Murray is to south-eastern Australia, so in value and importance is the great River Victoria to the opposite side of the continent.

In the northern portion of the Territory the year is regularly divided into two climatic periods—the wet season, which extends from about the end of October until the end of April, and the dry season, from May to September.

Mr. J. A. G. Little, who has charge of the Overland Telegraph Department and Observatory at Port Darwin, gives the following interesting description of the climatic changes:—"Signs of the approach of the wet season appear immediately after the sun has crossed the equator during the spring equinox in September, when the strong east-south-east monsoon, which has been blowing continually throughout the dry season, ceases, and is succeeded by calms and light variable winds; the weather becomes intensely hot, and small thunderclouds gather over the land, increasing in size and density day by day, until they burst into terrific thunderstorms, accompanied by hurricane squalls of wind and rain.

"These squalls at first take place every four or five days, gradually *increasing in number until the end of November, when they occur almost* daily. They come up in a dense black bank, and travel so very rapidly that they are generally out of sight on the western horizon within forty minutes. About an inch, or sometimes more, of heavy driving rain accompanies each storm.

"During December the north-west monsoon gradually gains the ascendency, and blows steadily, with an occasional break of calm weather; the thunderstorms disappear, the sky becomes overcast and clouded, and the atmosphere gets thoroughly saturated with moisture.

"This is felt to be an agreeable change after the intensely hot weather during the change of the monsoon in October and November, and although the humid moist atmosphere induces profuse perspiration, the effects of the weather are not nearly so unpleasant or severe as those attending the dry heat experienced in the southern portion of Australia during the same and two succeeding months.

"The north-west monsoon is accompanied by rain almost daily, and increases in force until the latter end of January or beginning of February, when it is blowing with full force and penetrates with its copious and fertilising showers into the very centre of Australia.

"During this period thick damp weather prevails, the clouds being very low, and scud and banks of nimbus pass over almost constantly from the north-west to the south-east with great rapidity. The maximum tem-

perature in the shade during the day in this weather is 96° and the minimum during the night is 65°.

"On the approach of the autumn equinox the north-west monsoon gradually dies away, and is succeeded by calms, variable winds, thunder-storms, and oppressive weather, until about the end of April, when cooler weather is felt, the south-east monsoon sets in, and the dry season may be said to have fairly commenced. This season is characterised by a clear sky, enjoyable weather, heavy dews, and cold mornings and nights, so much so that blankets can be used when sleeping. It blows off the coast without intermission, and with great force, almost throughout the season, being in full force between June and July.

"At Port Darwin and other places adjacent to the coast the monsoon generally drops in the afternoon, and is sometimes succeeded by a sea breeze, which is merely local, and only extends a few miles inland. The atmosphere is clear and dry and rather hot during the middle of the day, the maximum temperature in the day being 89° and the minimum during the night 56°. With regard to the suitability of the country for European labor, a man cannot perform the amount of constant work that he is capable of accomplishing in a more temperate climate, but still there is nothing to prevent a moderate day's work being done, and, further, there is an almost entire absence of those enervating influences which prostrate the European laborer in other tropical countries, such as India, Java, Singapore, or Africa. Workmen carry out their various avocations throughout the day without taking any precaution to ward off the rays of the sun, the eight hours system being usually adopted, as in other parts of Australia. The climate in fact may be said to be more of that type which is generally known as Australian, rather than tropical, and the same remark will, with very few exceptions, also apply to the flora, fauna, and perspective of the country.

"It is free from cholera and other scourges of hot countries, and on the whole may be considered healthy. Intermittent fever, commonly known as fever and ague, is prevalent at times, especially in low-lying localities, or immediately after the wet season, but this complaint is not dangerous in itself, and can often be prevented by a moderate and judicious use of medicine and a small amount of bodily exercise. Clothing of a light description is worn throughout the year, white being the best. Cloth or tweed clothing is not often used, and flannel is not recommended, as it produces attacks of prickly heat. Persons contemplating planting any kind of tropical produce should arrange to have their ground cleared in the dry season, and ready for seed during the commencement of the rains in October, so that the plants may have the full benefit of the wet season and humid weather. Vegetable growth is very rapid immediately after

the rain sets in, and the country becomes covered with grass knee deep in the course of a few weeks. This grass runs up to a height of about 6ft. or 8ft. during the wet season, and ripens early in May, when it is burnt. It springs again on flats or damp places, and generally continues green and fit for fodder throughout the year."

The rainfall during the past twenty years has averaged from 45in. to 81in. in each season, the general average being about 60in., the largest proportion of which falls during the months of December, January, February, and March.

The following is a record of the rainfall during the past ten years for the wet season, calculated from the month of August to the month of July:—

1882-3	63·106 inches
1883-4	64·770 "
1884-5	66·320 "
1885-6	61·085 "
1886-7	63·458 "
1887-8	68·620 "
1888-9	49·550 "
1889-90	66·545 "
1890-91	74·080 "
1891-2	43·670 "

All laws which are in force in South Australia proper are also operative in the Northern Territory except such as are specially exempted. In addition to the South Australian statutes the following are the principal special Acts applying to the Northern Territory only:—The Northern Territory Gold Mining Act of 1873, which deals with alluvial and quartz gold mining; the Gold Mining Act Amendment Act of 1886, which prevents Asiatic aliens working upon new goldfields until two years after the same have been proclaimed; the Northern Territory Mineral Act, No. 445 of 1888, which regulates the manner of taking up and working of Crown lands for all minerals and metals other than gold; the Northern Territory Crown Lands Act of 1890, providing for the sale and lease of Crown lands for agricultural, pastoral and other purposes; the Northern Territory Justice Acts, 1875, 1884, and 1885, and the Northern Territory Justice Act Amendment Act, 1891, provide for the trial of all criminal cases by juries of six, except capital offences, which have to be tried by juries of twelve; the Indian Immigration Acts of 1882 and 1890 legalise the introduction of Indian laborers for employment upon plantations and upon public works, and permit the Government Resident for the time being to act as immigration agent.

The Northern Territory Registration Act of 1879 establishes a registration office for bills of sale and other documents at Palmerston. The Northern Territory Representation Act of 1888 gave two separate representatives to the electors of the Northern Territory, and at the first election held under this Act in April, 1890, Mr. Vaiben Louis Solomon and the Hon. John Langdon Parsons were returned to serve in the House of Assembly. The Customs Act of 1882 imposed similar duties upon goods imported into the Northern Territory to those levied in South Australia proper, with the exception of the duties upon opium, rice, sugar, and tea, all of which were increased. A subsequent amending Act, passed in 1886, under the title of the Northern Territory Amendment Act, further increased the duty upon rice to 1d. per pound and opium to 30s. per pound, and imposed a duty of 10s. per ton upon rice offal and 1s. per gallon upon Chinese oil.

By the Insolvent Act of 1887 the Local Court of Palmerston was granted all the powers of a local court of insolvency. The Chinese Immigration Restriction Acts of 1888 and 1890 limited the number of Chinese to be carried by any vessel entering South Australian ports to one for every 500 tons register, and a subsequent Act, No. 534 of 1891, continued the previous Acts in force until repealed, and exempted Chinese naturalised in South Australia or any other Australian colony which may afford similar privileges to Chinese naturalised in South Australia, and also the wives of any such Chinese.

During the year 1880 a large area of land was taken up for pastoral purposes, a portion of which has since been abandoned owing to the absence of permanent waters, prevalence of the redwater disease, and other causes. At present the area held by pastoral lessees is 165,140 square miles, for which the Treasury receives the sum of £18,208 (eighteen thousand two hundred and eight pounds) annual rent, which is passed to the credit of the Territory revenue account. A large portion of this area is stocked with horned cattle and sheep, and on a few stations horse breeding is now being commenced with every prospect of success.

The census return of 1891 gives the number of stock in the Northern Territory, principally on land held under pastoral leases, as follows:—Horses, 11,919; milch cows, 1,259; horned cattle, 212,835; sheep, 45,902; goats, 3,056; pigs, 1,806. Hitherto, although pastoralists have had every reason to be satisfied with the annual increase with their herds, the great drawback with which they have had to contend has been the great distance from a market for their fat stock. In some instances cattle have been driven from the McArthur river, on the Gulf of Carpentaria, to Bourke, New South Wales, a distance of over 1,500 miles, and when sold

only realised about 30s. per head clear of droving expenses, which were extremely heavy. During a recent session of Parliament the Government entered into a contract for a regular line of steamers to run between Ports McArthur, Darwin, Victoria, and other ports on the north coast, and Sourabaya, Batavia, Amboyna, Samarang, Atjeh, and Singapore, carrying live cattle at a low rate of freight. The first steamer of this line has been specially built for the service, and is expected to arrive in Port Darwin early in the year. The pastoralists on the north coast are hopeful that this service will give them a market for their surplus stock, and from inquiries and the result of a few small trial shipments of cattle to Batavia, Sourabaya, and Hongkong, there is every reason to hope that such a market can be obtained in those ports for almost an unlimited number of cattle.

If the result of the present experiment is satisfactory, new life will be given to the pastoral industry in the northern portion of the continent. The steamer contract is for a term of five years, at a subsidy of £5,000 (five thousand pounds) a year, and the rate of freight for large cattle is 50s. per head.'

Referring to the subject of breeding horses for the Indian market, it will be noted by the figures given that already there are 11,919 horses in the Territory, and all who are capable of judging state that the country is well fitted for horse breeding. Up to the present time all experiments which have been tried in this direction have met with most gratifying success, and it is pleasing to note that not only in the temperate climate of the Macdonnell Ranges, Central Australia, do horses increase and thrive well, but in the Far North country at the back of the Gulf of Carpentaria, on the Victoria and Adelaide rivers, and on the country to the south of Port Darwin, horse breeding has been carried on with most encouraging results. Many pastoralists in the northern portion of the continent are now turning their attention to horse breeding, and are importing high-class stock from the southern colonies for that purpose, and the knowledge that there is a ready market for horses fitted for the remount service in India within a few days' steam of ports handy to their stations should give an increasing impetus to this important producing industry.

On the Herbert river country, and on many other large tracts of country in the central and northern portions of the continent, great difficulty has been experienced by pastoralists owing the scarcity of permanent waters, but efforts are now being made by some of the pastoral lessees to obtain reliable supplies by boring. The South Australian Government has consented to subsidise the first of these boring experiments on the Herbert river country, leased by Messrs. McIlwraith & Forrest, to the extent of £4,000, the lessees finding all appliances and conducting the

boring operations. Should this endeavor prove even moderately successful there is little doubt that boring operations will be extended, and a great impetus be thereby given to the pastoral industry.

During the years 1889 and 1890 the value of wool exported amounted to £8,876, and the value of the cattle exported to southern markets totalled £42,471.

Although the Northern Territory possesses large tracts of land suitable for the growth of tropical and semi-tropical products, so far experiments in the way of planting upon a large scale have not been as successful as anticipated.

Many causes have combined to prevent the rapid development of agri cultural pursuits. First the somewhat stringent land laws in the pas prevented the ready acquisition of suitable land, and in one or two instances when this difficulty has been overcome the work of planting has been entrusted to men who were inexperienced in tropical agriculture, and who did not exercise good judgment in the selection of their land. Another difficulty with which the pioneer planters had to contend was the scarcity of suitable cheap colored labour, for although Europeans can work well on the mines and in nearly all manual work, they are admittedly quite unfitted for work in cane or rice fields, or on tobacco plantations, not only because the climate is extremely trying in the field, but also owing to the necessity for the cheapest description of labor to enable planters to compete with other tropical countries where cheap native labor is available. Both these initial difficulties have now been to a great extent overcome, that in regard to the selection of land for agricultural purposes having been remedied by the passing of the Northern Territory Crown Lands Act, 1890, which contains most liberal provisions for the selection and occupation of suitable land for agriculture. Part IV. of this Act permits the selection of land anywhere north of the seventeenth parallel of south latitude without the expense and delay of survey, in blocks of not more than 640 acres, upon lease for five years at a rental of 6d. per acre per annum.

The applicant must first mark out the land he selects conspicuously, and within the first two years of the term the lessee is bound to cultivate one-tenth of the area selected, and during the following three years to cultivate an additional twentieth of the area in each successive year. During the term of lease he is further required to enclose the land with a substantial fence or wall. Upon proof to the satisfaction of the Minister controlling the Territory that these conditions have been complied with, and upon payment of the cost of survey, the lessee is entitled to the fee-simple of the land. These terms are the most liberal ever offered to intending settlers either in South Australia proper or in

the Northern Territory, "selection before survey" never having been previously legalised.

The difficulty in regard to cheap labor has also been overcome by the passing of the Indian Immigration Act of 1890, which provides for the Government Resident of the Northern Territory acting as Indian immigration agent, and thus renders the Act of 1882 workable.

Planters who desire to settle in the Territory, and require Indian labor for field work, will now be able to obtain it, through the Government, under the Acts of 1882 and 1890, and as the authorities are most anxious to encourage the cultivation of tropical products it may be taken for granted that every assistance will be given to them in this direction.

An unlimited supply of laborers suitable for plantation work can be readily obtained from India, which is only a few days' steam from Port Darwin, at a low rate of wage, which should ensure a highly profitable result to any energetic settler with moderate capital and some knowledge of agriculture who may give the rich lands of the Northern Territory a fair trial.

Visitors from Java, Singapore, Ceylon, and China, who were familiar with tropical agriculture in those countries, have spoken in the highest terms of the suitability of the soil and climate of the Northern Territory for the growth of sugar, coffee, tobacco, rice, indigo, and other tropical products, and wondered why the lands of the country were not occupied by prosperous planters.

There are, it is admitted by all who have visited the country, tens of thousands of acres of land suitable for cultivation on the banks of the Daly, Adelaide, and other rivers within easy reach of the coast, and with an average rainfall of from 60in. to 65in. each season, and the liberal provisions of the new Land Act, every encouragement is given to agricultural settlement. At the Government Gardens, situated about one mile from the town of Palmerston, about 100 acres of land have been cleared, and a large portion of it brought under cultivation.

Sugarcane, rice, tapioca, maize, oil and fibre plants, cotton, indigo, and hundreds of valuable tropical products and fruits have been successfully cultivated, and the curator, Mr. Holtze, is not only willing to give settlers every information in regard to the best season and mode of cultivation of such plants as they may desire to raise, but is also permitted to supply them with plants and seeds with which to make a start. A visit to the Government Garden would convince the most sceptical that the soil and climate of the Territory are eminently suited for the growth of nearly all the valuable commercial products which are so successfully grown in Java and other islands of the Eastern Archipelago, and it is no exaggeration to say that intending settlers will find on the banks of the rivers adjacent to Port Darwin many thousands of acres of land quite as well suited for

cultivation as that which shows such excellent results in this garden. To give some idea of the magnificent fertility of the soil, I append the following condensed account of a visit paid to the Government Garden by the writer of this article:—"The first thing to strike a visitor to the garden is the grand block of about ten acres of maize, planted only a few weeks ago, and now standing over 9ft. high, with fine cobs of corn just filling out. In addition to the maize I noticed Kaffir corn, dholl, Indian gram, sorghum, Californian millet, and nearly 200 different sorts of fodder grasses, most of which seem to thrive amazingly well, and a number of kinds of native grasses, which are being carefully tested. Next in importance to corn and fodder plants the large collection of fibre plants, which seem to thrive in only moderate soil like a wild weed, seems to be of great practical value.

"Jute or sun hemp, a fine plant which grows wild in the Territory, seems to require little cultivation or care, and would doubtless prove highly remunerative if grown upon a large scale, with suitable machinery to prepare it for market. The small trial patch of this plant looks extremely well, being over 8ft. in height, and as straight as an arrow." The peanut, from which the oil used in China is manufactured, grows like a weed, while the areca nut, palm, cocoanut, sugar palm, Panama palm, from which valuable straw for hats is manufactured, and a host of other specimens of the palm family seem to grow rapidly and sturdily.

"The chili, tomato, onion, capsicum, and many other edible products are most prolific, while the pineapple, banana, papaw, and mango would pay to grow for local consumption or export, requiring little or no attention, and producing regular and large crops of fruit. A plot of land was planted with ben-oil trees some fourteen months ago, and they now have trunks about 6in. in diameter, and are from 16ft. to 20ft. in height. The ramee or grass cloth plant has proved highly suitable to the soil and climate; a number of the shrubs planted only four months ago are now over 8ft. high, and look wonderfully vigorous. The fibre from this plant is extremely valuable, and the machinery necessary to clean it and make it fit for the market is not expensive. A large number of coffee plants are being prepared for planting out, and a few well-grown trees appear to be healthy, but not as promising as many of the other plants under cultivation.

"Cotton is the next plant worth noticing, and the varieties now being cultivated, namely, Sea Island and upland cotton, look extremely healthy and productive. Of course the difficulty to be encountered in the profitable cultivation of cotton, although the plant grows readily enough, is that no suitable cheap colored labor is obtainable for picking. Chinese labor is far too expensive, and the aborigines will not work, even at light employment of this kind.

"Rice is apparently well suited both to the soil and the climate; the Saigon swamp rice seeming to flourish well in low swampy ground. There are about nineteen sorts of rice under cultivation. Saigon swamp rice and the China hill rice are the two kinds which are best suited to this portion of the colony. Castor oil and tobacco grow rapidly, and give handsome returns for the time and labor expended upon them, but the tobacco must be carefully watched to prevent caterpillars destroying the leaf, and must be cured or prepared for market by thoroughly skilled men. That both of these valuable plants will grow well in the Territory has been amply demonstrated at the experimental garden, where intending planters can see quite sufficient evidence to warrant them giving one or both a trial. Sugarcane also grows well, and the few attempts which have been made to cultivate it in the Territory have been assisted by the planters having the advantage of obtaining all the cane they required for planting from the Government Garden. The present patch of cane, although only second season ratoons, looks healthy and well advanced. * * * *

"The teelseed oil plant, chufa oil, and sunflower all appear to be of vigorous growth, while the tapioca and arrowroot plants are simply marvellous, towering to a height of 8ft. to 9ft. Amongst the numerous plants of commercial value with which the garden is planted should be added the following, all of which are giving the most gratifying results:—Japan clover (a useful fodder now being cultivated in the southern colonies), chicory, carob tree, American broom corn, cinnamon, indigo, pepper, arnotto (a dye plant), mirobolan (another dye plant), and dozens of herbs valuable for medicinal purposes."

In the neighborhood of Palmerston and all the mining centres Chinese gardeners have cultivated small plots of ground, alluvial flats on the banks of creeks and in sheltered gullies being chosen as the best sites. These gardens are intensely cultivated by the Chinese, who resort to irrigation, and the result is that European settlers are supplied with abundance of fruit and vegetables at reasonable prices.

During the survey of the blocks of country lands for land-order holders in 1869, Mr. Burton, of Mr. Goyder's party, reported the discovery of gold on the Charlotte river, west of Tumbling Waters; but, although this belt of country has since been prospected in a desultory manner, no payable deposits of the precious metal have been found.

In 1870, during the construction of the Overland Telegraph line, Messrs. McLachlan and H. J. Masson discovered gold thirty-five miles east of Pine Creek, and in 1871 the same parties obtained 5¼ozs. at Pine Creek, near the present terminus of the northern section of the Transcontinental railway. In the same year Dalwood and Darwent's party

also discovered gold about four miles from the same place. The report of these discoveries led to the dispatch of Westcott's prospecting party from Adelaide in February, 1872. This party, which was sent out by a small company formed in Adelaide, after about six months' prospecting work, found rich gold-bearing reefs in the neighborhood of Yam Creek, about 115 miles from Palmerston, and the report of the wonderful richness of the stone led to the formation of a large number of mining companies in Adelaide. The majority of these companies were formed to work claims which were utterly valueless, and the result was the great mining boom of 1872-3, which brought disaster to hundreds of innocent investors in South Australia. That the collapse of some of these ventures was not owing to the worthlessness of the claims, but to incompetent management and inexperience, has since been amply demonstrated by the successful working of the same properties by experienced miners. Those engaged in the mining industry have had many drawbacks to contend with. Amongst the most serious may be mentioned the difficulty of obtaining competent miners at a reasonable rate of wage, the heavy cost of carriage of stores and machinery to the mining districts, the export duty on gold, and the high import duties upon machinery for the development of the mines, and last, but not least, faulty mining laws too leniently administered. After the stoppage of most of the companies floated during 1873, the claims which were worth working and the machinery belonging to the defunct companies fell into the hands of private individuals and small parties of working miners, at a merely nominal price, and in many instances properties which were then thrown up have since yielded large returns of gold.

The most important gold-reefing districts now being worked in the Northern Territory are the Howley, Yam Creek, Woolwonga, Fountain Head, Union, Pine Creek, Eureka, and Maude Creek, at all of which mining centres batteries have been erected. The extent of this belt of gold-bearing country can be roughly estimated as 120 miles in length from north to south, and a width of twenty miles east and west, and the gold exported from these districts through the Customs for a period of eleven years—from 1881 to 1892—amounted to 261,070ozs., valued at £919,700. In addition to this return, there is every reason to believe that many thousands of ounces of gold were taken away by Chinese passengers without reporting at the Custom-house, in order to avoid the payment of the export duty. No strict official record of the crushings from various districts has been kept, but it is estimated by the best authorities that the average yield of many thousands of tons taken from large reefs has been from 9dwts. to 18dwts. to the ton, and the average yield from smaller reefs, varying in width from 1ft. to 3ft., has been from

1½oz. to 2ozs. to the ton. This estimate does not include the smaller reefs and leaders from 3in. to 18in. in width, many of which have returned from 5ozs. to 30ozs. to the ton, from parcels of stone varying from ten to fifty tons.

SILVER MINING has been carried on for the past five years with varying success, and although no very large lodes have been discovered some excellent returns have been obtained from lodes varying from 2ft. to 10ft. in width. Amongst the most successful of the silver mines yet opened are the Eveleen Mine, situated about thirty miles from the Union railway station; the McKinlay and Mount Wells Company's Mine, about four miles from the McKinlay river; and the Flora Bell Mine, which adjoins the last named property. The export of silver ore and silver and lead bullion from these three mines during the past seven years totals 1,196 tons 7cwts, valued at £46,567, and the general average yield of the crude ore from these mines has been from 40ozs. of silver and 50 per cent. of lead to 150ozs. of silver and 65 per cent. of lead per ton. Owing to the lack of capital the companies formed to work these mines have been unable to develop the properties upon a scale which their apparent richness deserved; but an effort is now being made to raise further capital, and there is every probability of active operations being resumed shortly.

In referring to the Eveleen Silver Mine, Mr. Parkes, the Government Inspector of Mines, who recently visited the Territory, writes:—"I consider this mine has not been properly developed or worked as it should be. The surface has been rooted about for the rich deposits of ore. I am of opinion that it is a first-class mine and well worth better working than it has had." Mr. Parkes also reports favorably of the prospects of the McKinlay and Mount Wells and Flora Bell mines, and recommends further development of both properties.

COPPER.—In 1873 the first copper lode of importance was discovered about five miles from Pine Creek, but this property was not worked until 1889, when Messrs. C. G. Millar and J. C. Hillson, who purchased the lease at auction, raised 511 tons of ore, averaging 25 per cent. metal, which was shipped to Newcastle, New South Wales. Since this shipment the owners of the mine have allowed the property to lie idle; but Mr. Parkes considers that the expenditure of capital in works of development would render the mine productive.

The Daly River Copper Mine and Wheal Danks Copper Mine are situated about five miles from the Daly river, at the highest point of navigation, and were discovered in 1884 and 1885. Since that date both these mines have been worked with varying success; but, similarly to other mines in the Territory, the want of adequate capital has prevented the proper and systematic opening of both these properties, a fact readily

in saying it, that the Northern Territory of South Australia is phenomenally rich in minerals, but more especially in gold and tin, and I feel assured that in course of time it will become one of the chief producers of these two metals. A careful perusal of the returns I have given of the yield from the various mines will, I am convinced, be a surprise even to those who had previously had a high opinion of the gold-producing capabilities of the country, and when better facilities are afforded to mining investors for visiting the country, and systematic mining is carried on, and efficient appliances are introduced for treating the ores, I am positive that my expectations will be fully realised. Hitherto mining has been carried on in only the most primitive fashion by fossicking or rooting along the surface, or, at most, to only shallow depths in following the rich leaders. At the Union, Pine Creek, Fountain Head, Yam Creek, Woolwonga, Bridge and Maude Creeks, and the Howley the reefs are all indicative of permanency, and give promise of large yields when systematically worked. The gold found at Maude Creek is, however, very fine and will require other means for its extraction than the ordinary battery. On the other fields, with an exception here and there, the gold is sufficiently coarse to be saved by ordinary crushing and amalgamation. . . . . . . Some of the tin properties—notably those at Mount Tolmer, Mount Shoobridge, and Bynoe Harbor—promise a rich reward when properly developed and equipped with suitable dressing machinery. One specimen of tin oxide which I obtained from Mount Lynes, Bynoe Harbor district, weighed no less than 76lbs. Copper is to be found over a large area, but no property has been developed to any great extent. The copper as a rule is rich, and in some cases carries a fair percentage of silver, notably at Maude Creek and the Eveleen district; but at the present price of copper the mines cannot be expected to be remunerative. The two best silver properties are the Eveleen and McKinlay and Mount Wells, and these should pay if properly worked. Most of the ore at the Eveleen is, however, very refractory, containing a large percentage of sulphide of zinc, and will require very careful treatment. As depth is obtained it will probably become less refractory."

It is well known that for the past eighty years the north coast of Australia has been visited annually by a fleet of Malay proas from Maccassar, carrying a large number of men, who were profitably employed in collecting and curing trepang or bêche-de-mer, a valuable article of commerce. The proas usually arrive on the coast at the beginning of the north-west monsoon, and after a stay of a few weeks return to Maccassar directly the south-east monsoon sets in, taking with them large quantities of bêche-de-mer. In 1885 the Customs Department at Port Darwin appointed a landing waiter at Bowen Straits to collect import duties from

the Malays upon tobacco, rice, spirits, &c., large quantities of which they brought with them for the use of their crews and to pay the natives for their work in assisting them to gather and cure the bêche-de-mer. From 1885 to 1890 the Customs Department received a revenue of about £500 a year from this source, and obtained the valuable information that the quantity of trepang exported during the period of six years totalled 1,012 tons, valued at £42,363. In addition to trepang the Maccassar men have for many years taken away large quantities of tortoise shells, pearl shell, and seed pearls, all of which are collected by the natives and bartered to the Malays for rice, tobacco, arrac, and gaudy handkerchiefs. In 1884 mother-of-pearl shell was discovered in Port Darwin harbor, and a rush of pearling boats set in from Torres Straits. During the years 1885 and 1886 49 tons 15cwts. of pearl shell, valued at £7,040, was exported from Port Darwin, but the new industry was gradually abandoned, principally owing to the heavy tides and consequent muddiness of the water preventing the divers working more than a few days in each month. During the year 1891 another attempt has been made to discover new patches of shell, and two well-equipped boats are now being employed prospecting. In addition to pearl and trepang fishing a trade is now springing up in dry salted fish, which the Chinese net in large quantities in the harbor and along the coast, and, after curing, ship to Hongkong, where there is almost an unlimited market. Buffalo hides and horns have also been a material item in the export returns. The swamp buffalo was introduced into the Territory when the Imperial Government established the first settlement at Raffles Bay in the year 1827, and since then they have increased so rapidly that during the past few years shooting parties have found profitable occupation in destroying them for the sake of their hides and horns, many thousands of which have been exported. During the period of five years from 1886 to 1890 the value of the hides exported amounted to £8,439.

Some idea of the trade and commerce of the Northern Territory can be obtained from the following Customs statistics, extending a little over ten years, from August, 1880, to December, 1890:—

During this period 863 vessels of a total tonnage of 854,079 tons arrived in the harbor of Port Darwin, bringing 15,650 passengers, while 895 vessels, 854,095 tons, carrying 11,310 passengers, left the harbor.

The total value of goods imported for the ten years amounted to £1,842,476, while the exports for the same period were valued at £1,058,108, and the Customs revenue collected totalled £305,077 4s. 10d. A large portion of the difference between the imports and exports represents the value of iron rails, sleepers, bridge work, and rolling-stock for the Palmerston and Pine Creek railway.

SHIPPING—1880 TO 1890.

Inwards..............Vessels, 863; tonnage, 854,079; passengers, 15,650.
Outwards .... " 895; " 854,094; " 11,310.

NOTE.—The list of vessels inwards includes the hulk *Belle of South Esk*, 540 tons, which still remains in Port Darwin harbor; and the list of vessels outwards includes a number of small pearling boats which were brought to Port Darwin by steamers as cargo, and therefore were not included in the list of vessels inwards.

Customs revenue, 1880 to 1890 ....£305,077 4s. 10d.

EXPORTS AND IMPORTS—1880 TO 1890.

Exports.

	£
Gold, 208,316ozs., valued at	739,310
Silver ore and bullion, 985 tons 16cwts.	40,807
Copper ore, 2,734¾ tons	32,905
Tin ore, 397½ tons	18,531
Bêche-de-mer, 1,011 tons	42,363
Pearl-shell, 49 tons 15cwts.	7,040
Dried fish	483
Horned cattle	42,471
Wool	8,876
Horses	350
Tortoise-shell	2,025
Hides	8,439
Sugar (manufactured)	1,675
Gold concentrates	312
British and foreign	33,493
Sundries (unenumerated)	77,028
Total Exports	£1,056,108

Imports.

British, foreign, and colonial, including railway materials, rails, sleepers, and rolling-stock for the Palmerston and Pine Creek railway £1,842,476

EXPORTS AND IMPORTS FOR YEAR 1891.

Exports.

	£
Gold, 28,629ozs., valued at	98,149
Silver ore and bullion, 99 tons	4,140
Copper ore, 256 tons	3,619
Tin ore, 41 tons	1,870
Gold concentrates, 26 tons	552
Trepang, 103 tons	2,725
Sugar, manufactured	480
Tobacco leaf, 5,373lbs.	426
Dried fish, 93,802 lbs.	1,048
Tortoise-shell, 2,290lbs.	1,125
Hides and horns	3,020
Horned cattle, 5,875 head	17,625
Sheep, 7,500 head	2,250
Wool	1,315
Sundries unenumerated	6,053
Total Exports	£144,397

Imports.

British, foreign, and colonial £119,450

SHIPPING—1891.

Inwards	Vessels, 83;	tonnage, 85,347;	passengers, 442
Outwards	" 82;	" 85,295;	" 645

Total Customs revenue for year 1891..............£32,734 2s. 3d.

EXPORTS AND IMPORTS—1892.

Exports.	£
Gold, 31,588ozs.	108,763
Copper, 1,681 tons	2,155
Tin ore, 39 tons	2,433
Silver ore, 112 tons	1,640
Trepang, 127 tons	4,525
Pearl-shell, 10 tons	1,705
Hides and horns	2,587
Cattle, 7,446	24,605
Wool, 137,487lbs.	6,154
Dried fish, 52,432	691
Tortoise-shell, 2,300lbs.	860
Horses, 43	178
Gold ore, 23 tons	430
Sundries	370
British and foreign	11,043
Total Exports	£168,139

Imports.

British, foreign, and colonial £117,910

SHIPPING—1892.

Inwards	Vessels, 85;	tonnage, 81,123;	passengers, 505
Outwards..................	" 84;	" 80,690;	" 549

Total Customs revenue..............£31,581 3s. 8d.

It will be seen by the following condensed table that the revenue of the Northern Territory from the first settlement in 1864 to June, 1890, amounted to £833,026 14s. 1d., the bulk of which has been received from land sales, rents, and Customs duties. In addition to this amount proceeds of bonds totalled £611,115 6s. 3d. The expenditure upon maintenance, surveys, buildings, interest, &c., has amounted to £1,417,966 2s. 6d., of which sum £385,231 19s. 2d. was devoted to interest upon and redemption of bonds, and repayment of sums advanced by South Australia.

SUMMARY OF RECEIPTS AND EXPENDITURE.

	1864 to 1880.			1881 to 1890.			Total.		
Receipts—	£	s.	d.	£	s.	d.	£	s.	d.
Land sales	92,973	0	2	72,570	1	0	165,543	1	2
Customs duties	14,489	12	11	295,068	18	6	309,558	11	5
Interest on land sales proceeds	5,619	13	1	—			5,619	13	1
Repayment of commission on repayments to land holders	3,422	4	7	—			3,422	4	7
Proceeds of bonds sold	325,601	1	7	285,514	4	10	611,115	6	5
Land rents, licences, fines, fees, &c.	49,685	3	5	299,198	0	5	348,883	3	10
	£491,790	15	9	£952,351	14	9	£1,444,142	0	6
Expenditure—	£	s.	d.	£	s.	d.	£	s.	d.
Cost of maintenance, surveys, buildings, salaries, &c.	432,747	10	11	455,566	6	3	888,313	17	2
Commission to South Australia	13,833	7	1	37,913	6	4	51,746	13	5
Repayments to land order holders, interest, costs, &c.	73,531	8	5	—			73,531	8	5
Retiring allowances	8,621	1	7	4,703	10	0	13,324	11	7
Introduction Chinese coolies	5,817	12	9	—			5,817	12	9
Interest and redemption of bonds and repayments to South Australia	—			385,231	19	2	385,231	19	2
	£534,551	0	9	£883,415	1	9	£1,417,966	2	6

NOTE.—The Palmerston and Pine Creek railway and jetty loan is not included in the above statement.

RECEIPTS AND EXPENDITURE.

Receipts.

	1890–1.			1891–2.			1892–3.		
	£	s.	d.	£	s.	d.	£	s.	d.
Taxation	33,229	14	10	36,128	14	7	34,933	4	0
Receipts from Public Works and Services	16,319	19	11	16,963	0	2	16,358	4	3
Other Receipts	3,330	5	9	484	14	11	638	0	8
Territorial Revenue	19,625	3	10	16,067	4	11	13,689	2	4
	£72,505	4	4	£69,643	14	7	£65,618	11	3

Expenditure.

	1890-1.			1891-2.			1892-3.		
	£	s.	d.	£	s.	d.	£	s.	d.
Government Resident	2,478	13	6	2,745	0	7	2,440	6	9
Police	8,341	6	1	8,487	4	5	8,296	14	1
Gaol	2,031	13	10	1,293	19	10	1,489	3	11
Charitable Institutions ...	3,615	3	0	3,389	19	3	3,287	3	11
Law Officers	783	15	4	420	2	5	557	11	4
Customs and Marine	3,804	13	2	3,509	2	2	4,706	12	9
Stock Inspector	20	16	8	25	0	0	25	0	0
Botanic Garden	878	3	10	403	19	10	373	17	11
Survey	801	17	8	655	6	8	698	12	4
Goldfields and Mining	2,464	0	6	3,167	16	2	1,208	13	8
Education	230	6	9	225	19	1	219	9	8
Postal	3,647	18	6	3,898	12	9	3,505	5	8
Railways	14,549	4	0	12,684	16	6	11,403	18	11
Public Works	3,639	7	10	1,807	2	10	1,440	19	5
Retiring Allowances	136	2	5	375	0	10	—		
Miscellaneous	3,006	17	9	2,761	11	0	7,206	14	7
Adelaide Office	—			125	0	0	310	0	0
Interest on Bonds	70,160	10	0	70,160	10	0	70,160	10	0
Interest on Account Current with South Australia....	—			—			6,000	0	0
	£120,590	10	10	£116,136	4	4	£123,150	14	11

The population of the Northern Territory, estimated according to last census returns taken in 1891, was 4,560 males and 338 females, making a total of 4,898.

Of this population 3,392 are Chinese adult males.

The bulk of the population is settled within 200 miles of the north coast, and on the pastoral country near the McArthur and Roper rivers, Gulf of Carpentaria, only about 220 being employed in pastoral pursuits and upon the telegraph line between Pine Creek and the southern boundary of the Territory, and some 280 engaged principally in pastoral pursuits in the neighborhood of the Macdonnell Ranges.

The Wesleyan Church at Palmerston was established in 1873, the late Rev. A. J. Bogle being the first minister. The church property consists of a wooden church erected upon brick pillars and a comfortable parsonage constructed of galvanized iron upon a cement and stone foundation. Morning and evening services are held every Sunday; and there is also a well attended Sunday school conducted by the resident minister and several lady assistants.

The Church of England was first established in Palmerston in 1871, when the services were conducted by the late Dr. Milner. Since that date a block of land in Mitchell-street has been purchased, and a substantial parsonage has been erected, but owing to the small attendance at the services (which were held in the courthouse) they have lately been discontinued.

The Catholic Church has established mission stations on the Daly river, under the direction of the Jesuit Fathers. A pretty little church has also been erected in Smith-street, Palmerston, where services are held morning and evening every Sunday.

The mission stations at the Daly river are under the control of the Rev. Fathers D. McKillop and Joseph Conrath, and the church work at Palmerston was conducted by the Very Rev. A. Strele, superior of the whole mission and administrator, and the Rev. J. F. O'Brien. The Rev. Father D. McKillop is now in charge.

The natives of the northern coast of the Territory are as a general rule treacherous and lazy, relying entirely upon game, fish, yams, and other indigenous edible roots for their sustenance. Like other aborigines of Australia, the women do most of the work, gathering roots and other articles of food, carrying wood and water, and camp necessaries when travelling. In physique the natives are superior to the southern tribes, especially those tribes which are settled upon the large coastal streams, such as the Daly, Adelaide, and Alligator rivers, where an abundant supply of game and fish is obtainable without much trouble.

There have been many instances of brutal murders of white settlers by the natives since the settlement first commenced, but as the influence of the Europeans spreads such crimes have become less frequent, partly owing to a better friendly understanding having been established with the natives, and partly to the quietening influence of prompt reprisals made by the whites upon offending tribes.

The Jesuit Fathers established a native mission station at Rapid Creek, about seven miles from Palmerston, in 1882, but that country having been found unsuitable, the mission has been removed to the Daly river. The Jesuit Fathers having been granted a tract of land by the Government for missionary purposes, are endeavoring to train the young men of the tribe to field labor, and are also striving hard to educate and civilise the younger children.

Two of the reverend fathers have made themselves masters of the native language, and are thus able to communicate readily with the chiefs of the tribes, and exercise a beneficial influence over them.

If they succeed in their present experiment in the utilisation of native labor for tropical agriculture other settlers will be encouraged to start plantations upon the same lines. The tribes settled upon Melville Island and upon the large rivers are extremely warlike and fearless, but, unlike the natives of New Guinea and many of the adjacent islands, they do not use poisoned weapons.

It has been stated by some of the early explorers and settlers that the natives of North Australia practised cannibalism, but there has been no reliable evidence of such being the case since the permanent settlement of Port Darwin by Europeans.

The northern portion of the Transcontinental railway, the construction of which was authorised by the South Australian Parliament in 1883, was commenced by the contractors, Messrs. Millar Bros., in August, 1886, and completed in October, 1889. The line, which extends from Palmerston in a southerly direction to Pine Creek, is 146 miles in length, running almost parallel with the Overland Telegraph line, and passing through a belt of rich mineral country from the Stapleton to the terminus at Pine Creek, a distance of some seventy-six miles. The whole of the work of construction, with the exception of that portion which required skilled mechanics, was done with Asiatic labor, as many as 3,000 Chinamen being employed upon the line at one time. The line is well and solidly built on the 3ft. 6in. gauge, the earthworks being protected from the rush of flood waters in the wet season by numerous cement concrete culverts and flood openings. The bridges, which are all constructed of iron, and were manufactured by Messrs. Martin & Co., of Gawler, are substantially erected upon solid cement foundations.

Owing to the well-known terrible ravages of the white ants, which in the Northern Territory rapidly destroy every description of timber, it was found necessary to lay the rails upon hollow steel sleepers. The only native timbers known to resist the white ants are the Cypress pine and ironwood, neither of which were obtainable in the Territory in sufficient quantities to permit of their being used for the work. Since

the completion of the line the earthworks have required the close attention of repairing gangs during the wet season, but so far no serious damage has been done to the line. Two trains carrying goods and passsengers are dispatched weekly from Palmerston to Pine Creek, leaving the former station on Tuesdays and Fridays, returning on Wednesdays and Saturdays. Passenger fares, first-class, are 4d. per mile, with a reduction of 25 per cent. for return tickets; second-class, 3d. per mile, with a reduction of 25 per cent. for return tickets.

TRANSCONTINENTAL RAILWAY.

Palmerston and Pine Creek Line.

Stations.	Mileage.
McMinn's Lagoon	21
Southport-road	38
Rum Jungle	57
Stapleton	70
Adelaide River	77
Goodilla	87
Howley River	101
Fountain Head	108
Grove Hill	114
Burrundie	124
Boomleera	132
Union Reefs	139
Pine Creek	146

The Overland Telegraph line, which connects Australia with the European world, was completed by the South Australian Government in 1872, the entire work of survey and construction being accomplished with European labor under the able superintendence and direction of the present Postmaster-General and Superintendent of Telegraphs, Mr. (now Sir) Charles Todd. At the time this great work was first proposed it was looked upon by many prominent colonists as far too vast an undertaking for so young a colony as South Australia; but, although for many years the receipts of the line did not pay for interest upon the cost of construction, the traffic has of late years increased in a thoroughly satisfactory manner. The indirect benefit to the commerce and advancement of Australia which has been the outcome of the establishment of telegraphic communication with Europe cannot be overestimated. Since the completion of the line, which was first built on wooden poles, a great portion of them have been replaced by iron poles, which have made the work more permanent and substantial, and materially reduced the cost of maintenance.

The northern terminus of the Overland Telegraph line at Port Darwin is also the landing place of the two European cables, which were laid by the Eastern Extension Australia and China Telegraph Company, Limited, in 1872 and 1879.

The telegraph rates from stations in South Australia to stations north of the twenty-sixth parallel of south latitude are as follows:—

	First Ten Words.	Every Extra Word.
Adelaide to Charlotte Waters	3s.	3d.
" Alice Springs	3s.	3d.
" Barrow's Creek	4s.	4d.
" Tennant's Creek	5s.	5d.
" Powell's Creek	5s.	5d.
" Daly Waters	5s.	5d.
" Katherine	6s.	6d.
" Burrundie	6s.	6d.
" Port Darwin	6s.	6d.
Port Darwin to Burrundie	2s.	2d.
" Katherine	2s.	2d.
" Daly Waters	3s.	3d.
" Powell's Creek	4s.	4d.
" Tennant's Creek	5s.	5d.
" Barrow's Creek	5s.	5d.
" Alice Springs	5s.	5d.
" Charlotte Waters	6s.	6d.
" other stations in South Australia	6s.	6d.

Deferred telegrams between South Australia and Northern Territory stations are charged half the above rates, and press telegrams at the rate of 6s. for the first 100 words, and 1s. 6d. for every additional twenty-five words.

Port Darwin to any station in New South Wales or Victoria, 8s. for the first ten words, 8d. extra for every additional word; and to any station in Queensland, 9s. for the first ten words, 9d. for each additional word. Names and addresses are not counted as portion of message.

Monthly mails between Adelade and Port Darwin are conveyed by the E. and A. Company's steamers, generally calling at Brisbane, Townsville, and Thursday Island. These steamers extend to China and Japan. Mails are also carried by the China Navigation Company's steamers from Sydney to Port Darwin, calling at Queensland ports. These steamers are dispatched about every three weeks, and also extend from Port Darwin to China and Japan. Mails from Port Darwin for the southern colonies are dispatched by the steamers of the Eastern and Australian Steamship Company and China Navigation Company, one of which usually calls at Port Darwin fortnightly, *en route* from Hongkong to Sydney by way of Queensland ports. Inland, intercolonial, and British and foreign postal rates are the same as in South Australia. From Palmerston (Port Darwin) there are mail services by train every Tuesday and Friday to Pine Creek, *viâ* intermediate stations, retu-

on Wednesday and Saturday. Pine Creek to the Katherine river and Maude Creek by mail coach every Saturday, returning every Tuesday. Burrundie to Eveleen every Saturday by mail coach, returning following Tuesday. Borroloola (McArthur river) to Camooweal (Queensland border).—Mails are dispatched overland on alternate Thursdays from Camooweal and from Borroloola, arriving at their respective destinations every alternate Wednesday, the trip taking thirteen days each way.

The country from Palmerston to Pine Creek is generally rich in minerals, but good patches of land, suitable for both pastoral and agricultural pursuits, are frequently met with. Palmerston is about 70ft. above low-water level, and travelling south the country gradually rises, Pine Creek being 650ft. above sea level. Between Pine Creek, the southern terminus of the northern section of the Transcontinental railway line, and the twenty-sixth parallel of south latitude, which is the southern boundary of the Northern Territory, a distance of about 1,000 miles, the country varies considerably in character, but a large portion of it within easy distance of the Overland Telegraph line is described by travellers as fairly good pastoral country, with a moderate rainfall in the southern portion, increasing as the more northern country is reached. The whole of the line of route is fairly watered by creeks, and water can be obtained by sinking to moderate depths even in the driest districts. Belts of country in the neighborhood of the Macdonnell Ranges and other places in the interior are said to have every appearance of mineral wealth, but so far they have only been examined in a desultory manner.